Telephony

December 14, 1935

Unusual Construction Problems In Mountain States Territory

By SHERRILL de FRANCE

SOME UNUSUAL difficulties met and overcome by engineers and construction forces of Mountain States Telephone & Telegraph Co. in sparsely-settled western states comprising one-fourth of country's entire area and 3 per cent of nation's telephones. View to the right shows three-pole structure at terminal of long span located in shelter of cliff on east slope of San Miguel in Colorado, to avoid snowslides. Poles are guyed in all directions with rock anchors

OPERATING in the seven Rocky Mountain states (Montana, Idaho, Wyoming, Utah, Colorado, Arizona and New Mexico) and the little corner of Texas which includes the El Paso territory, the Mountain States Telephone & Telegraph Co. covers approximately one-fourth of the entire area of the United States but services only about 3 per cent of the telephones of the nation.

This vast and sparsely-populated section is—from the standpoint of the building of telephone lines—tough country. Some of the problems encountered by companies operating in the large metropolitan centers—such as New York City and Chicago—are missed, to be sure. But different and highly individual problems which present difficulty in solution are met in this Western country, untraveled and isolated during the greater part of the year.

Argentine Pass Toll Line

Up until recent years the Denver-Salt Lake toll line, in crossing the famed Argentine Pass, represented the highest toll line in the entire world. The completion, several years ago, of the line over the Andes Mountains in Chile, South America, eclipsed in height the 13,200 feet attained by the Mountain States line over Argentine Pass, located just west of Georgetown, Colo.

The construction and maintenance of the Argentine Pass toll line presented one of the most difficult construction jobs in the entire history of telephone construction pioneering. The first line over the pass failed to withstand the high winds and the weight of the heavy coatings of ice and snow on the wires and poles. Repair crews spent most of their time preventing these daily occurrences up on the pass after it was demonstrated that poles snapped and wires broke with monotonous regularity.

Other ever-present hazards were the snowslides which would carry away whole sections of the line. The first winter proved conclusively that it was absolutely impossible to keep that line standing by using ordinary pole-line construction methods.

The second effort was a telephone cable enclosed in a two-inch iron pipe laid across the rocky ground of the pass. This, also, proved to be a total failure. The large amount of expansion and contraction, caused by the wide differences in temperature between noon and night at that high altitude, stripped threads at the pipe joints and allowed water to enter. The water would freeze at night, break the pipe and puncture the lead cable sheath in many places. One winter proved the fallacy of that idea.

Next a lead sheath telephone cable protected with a thick coating of a composition material similar to the present-day okanite, was tried. This arrangement corrected the expansion and contraction difficulties of the iron pipe plan but opened up still another problem.

Linemen very soon discovered that it held an uncanny attraction to rats and coonies. They would come in families, follow the cable and eat

the insulation off of entire sections. Evidently the taste of the coating material was exactly what they most liked, because in many places they gnawed right through the lead sheath.

Perhaps it was only a temporary annoyance, the engineers thought, so linemen were delegated to patrol the cable. As each cable pair got into trouble and went out of service, they would string a twisted pair of drop wires to replace it. Pretty soon, all of the cable pairs were out of service and all of the circuits over the pass were carried in the twisted pair drop wires.

These wires, similar to the ordinary drop wires used to bring telephone service into subscribers' dwellings, were never designed to withstand such severe conditions as were encountered on the pass. The result of this unsatisfactory and expensive expedient was that patrolmen were spending most of their time laying drop wires back and forth over the pass to replace the damaged and broken wires.

Ouray–Telluride Toll Line of the Mountain State Telephone & Telegraph Co. Approaching Summit of San Miguel Pass in Colorado.

Finally a type of pole structure was designed mathematically to withstand the various loads involved. This line, built in 1916, has withstood the severe service conditions of the Argentine Pass without serious accident up to the present time. It is composed of unusually large poles placed in two-pole "H" fixtures. The fixtures are placed close together with short span lengths. Sections of poles are used for crossarms and 4,000-pound strands are used for line wires.

The pole fixtures are guyed in all directions to rock anchors set in holes drilled in solid rock. Viewing the line across the pass, one gets the impression of a gigantic spider-web, due to the numerous guy wires used in the construction.

Canyon lines also present peculiar difficulties. An instance of this is the line between Canon City and Salida, Colo., built for the most part in the canyon of the Arkansas River. It follows the general route of the automobile highway and, in many places, the poles had to be placed so that they stuck out at right angles from the canyon's high walls.

When the construction of this line was ordered, the workmen—who were inexperienced in drilling holes in solid rock—found it absolutely impossible to put in more than one hole a day per pair of men. Two men during one working day drilled one hole. The cost apparently was going to mount to terrific heights.

Then the foreman encountered some miners in the neighborhood who seemed eager to contract the entire job for $1.25 a hole. They worked in teams of three, one holding the drill, two working on the hammers. From the way the holes went in, they evidently had a good thing of it, in spite of the fact that they could earn $10 apiece in their mining work, each day they worked.

The line across the Great Salt Desert in Utah was put through in mid-summer with temperatures of 112 degrees Fahrenheit common. The wholly new and different substrata found presented an entirely strange problem when it came to digging pole holes. This line acress the Salt Desert is 38 miles in length and, as there was no road there at the time of construction, all of the work was done from the roadbed of the railroad.

For some 30 miles a boggy land was covered—so boggy that a man could, with the casual pressure of his two fingers, push a five-foot lath out of sight at any place along the line. Horses were used in the construction work and, after the serious crippling of a few at the outset, they were furnished with leather boots to protect their legs from the poisonous effects of the salt in the bogs that they, from time to time, dropped into.

The last eight miles of this line went straight across the famed Salduro salt beds (not so famous then as they are now that racing drivers have selected the spot for their world speed tests). This eight-mile stretch is literally a pure salt bed, hard as rock.

Over the span of many centuries, it has been built up by the more or less regular blowing of salt water from the lake up over it, the lake receding with the cessation of the wind, and leaving a layer of salt there. Each occurrence deposited a layer of salt approximately one inch thick with air bubbles in between.

These strata of air bubbles opened up another problem for the Mountain States engineers and construction men to solve. Ordinary drilling methods were useless since, after penetrating the inch thick shell of salt, the drill would drop into the air bubble space and promptly choke up.

A new type drill, slightly larger at the top, was invented and used in conjunction with a pipe. After drilling through the inch of salt shell, the pipe, which covered the drill, was raised. It brought up the salt with it every time, as the salt was invariably damp and stuck readily to the iron pipe. It was then dumped and lowered down to position again, the drill started and another space cleaned out.

An interesting aftermath was found in the fact that no preservative was needed on the poles used on this stretch. The salt in the bogs and the salt beds effectively prevent any decay or rot starting in wood and, of course, prohibit any animal life whatsoever. That was about the only physical advantage connected with the construction of the line.

World's Largest Catenary Span

Another unusual construction job successfully completed by the engineers and construction forces of the Mountain States company was the catenary span across the Gila River between Duncan and Globe, Ariz. This is believed to be the longest and largest catenary open-wire span in the world, the span measuring 2,373 feet between towers or "H" fixtures from which the wires are suspended. A complete description with illustrations of this engineering feat appeared in TELEPHONY of February 9, 1929.

Due to the fact that the Gila River—like other southwestern streams and washes—is liable to oc-

cupy a bed a half-mile wide during the spring rains, it was obviously impracticable to throw a line across the bed itself. The difficulties of getting down the precipitous slopes from the tableland onto the stream's normally dry bed would not be insurmountable but the cost of replacing such a line each year after the spring floods washed it out would, within a few years, represent the total cost of a catenary span.

Accordingly, when the toll line from Lordsburg, N. M., to Phoenix, Ariz., was decided upon, surveys and research work pointed out the necessity of crossing the Gila River with a catenary. This catenary, one of over 30 spans in this toll line, is radically different from the ordinary "long span". It consists of two 18,000-pound messenger cables supported on either side by the steel column fixtures, one being 100 feet high and the other (north bank) being 75 feet in height. Crossarm hangers are suspended at 162½-foot intervals from the two-messenger cables.

The main suspension strand, which supports 13 three-arm standard fixtures, is a special steel bridge cable consisting of seven strands of seven wires each. The cable weighs 3.7 pounds per foot and was provided in two lengths of 2,940 feet each in rolls weighing over 12,000 pounds apiece. The steel columns were assembled complete on the ground and aligned before erection. The main cables are sagged approximately 85 feet, allowing a clearance of about 30 feet between the river bed and the nearest or lowest wires on the third arm.

Three-Pole Bridge Arm Construction at Terminal of Long Span on West Slope of San Miguel Pass. The Poles Are Set in Holes Drilled in Rock.

Only recently the Mountain States company's outside construction forces completed the difficult task of replacing the poles in a portion of its 550-mile stretch of long distance line connecting Denver, Colo., and El Paso, Texas—the section between Albuquerque and Socorro, N. Mex.

Setting poles in a terrain whose elevation varies 3,843 feet—from a maximum height of 7,623 feet where the line enters the state of New Mexico over the Raton Pass to the lowest point of the line at El Paso, Texas—presents many difficulties. Supplementing these with mountains of shifting sand in a veritable Sahara, other unique problems are encountered.

The Albuquerque-Socorro line traverses a region utterly devoid of vegetation where the sand follows the vagaries of the wind. It piles up until at times it is nearly within a foot of the lowest telephone wire, while at other times the sand is cleared away to the very desert floor.

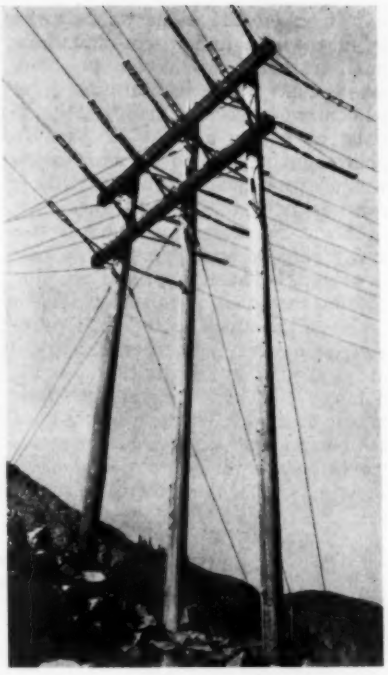
It was in this area that the Mountain States company recently completed the task of replacing all of its poles. Since there is no well-defined ground line, 40-ft. poles (fully creosoted) were used. In order to find solid ground in which to set the poles, it was necessary to first remove the sand with scrapers and tractors.

Novel Maintenance Problems

In addition to its construction problems, this Mountain States area has many novel maintenance problems to deal with. Beetles bore through the lead sheaths of cables in search of places to lay their eggs. They also eat up the lead fuse wires of seven-ampere fuses in cable terminals. Woodpeckers peck their way into wooden terminal boxes, not so much to nest therein as for the pecking exercise. But, after the holes are dug, squirrels find them and nest in the boxes, causing a great deal of trouble on the cable pairs.

This situation was circumvented by covering all terminal boxes with sheet metal. The woodpeckers soon tire of drilling away on galvanized iron and look for softer material to do their pecking on.

Termites channel out the wood of poles to build their colonies. Patrolmen are constantly on the watch for this and carry cans of kerosene with which to drive away a family when they discover them moving in. Rattlesnakes get into hollow heart poles and have to be shot out.



Terminal of an 1,100 Foot Span on the Mountain States Toll Line Between Eureka and Animas Forks, Colorado.

One of the most recent problems of maintenance—and one that was found in all seven states in which the Mountain States company operates—was connected with wasps. The troubles resulting from their starting their nests in cable terminal boxes was matched only by the hazards created for the patrolmen and inspectors when they would come upon a nest unexpectedly.

Just completed and now being distributed to all maintenance employes is a bulletin on the elimination of wasps. It covers a brief description of the species that will be found, their habits, the usual time when nesting begins and for how long a period it will continue in each locality, expected locations of nests and recommended chemicals to be used as preventives.

Through the cooperation of state entomologists throughout the Rocky Mountain region, it was determined that the nesting season begins in February, lasts as late as October in one state but is generally over in six or seven weeks in the other states. The experience of maintenance employes informed them that the most common locations would be in the cable terminal boxes, on drop wire between fanning strips or the top of binding posts.

The state departments told them that the most effective way to com-

bat them (to drive the wasps away from the line and discourage their nesting there) would be to hang small cloth sacks containing from one to two ounces of ordinary mothballs or a like amount of para-dichoro-benzine. Also recommended was a straw board saturated with a solution of alpha naphthaline.

It was found impracticable to use spray guns because it meant too long a period between applications, due to the fact that the spray has a detrimental effect on terminal parts and drop wire insulation if applied often enough to keep it the least bit damp. Furthermore, spray guns meant that each employe would have to carry one, and such practice would be prohibitively expensive.

An odd emergency note was accidentally discovered by a foreman when he noticed that a swarm of wasps was mightily attracted to a chicken sandwich laid out for lunch. He tested the efficacy of chicken as a lure for the wasps shortly afterwards by cautiously hanging a piece of fried chicken some five feet away from the pole on a drop wire, then purposely disturbing a nest that he knew to be in the terminal.

The wasps buzzed out angrily, discovered the chicken leg and ignored the foreman who knocked out their nest and climbed down unharmed.

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Kansas Convention Scheduled for Next May

The Kansas Telephone Association's 1936 convention will be held on May 12 and 13 at the Hotel Sunflower in Abilene. The day preceding the opening of the convention will be devoted to golfing and telephone men who like to "bat" a golf ball around are urged to arrive at the convention a day early to participate in the fun. H. B. Couch, of Topeka, is secretary of the association.

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Vocational School Drills in Telephone's Use

Drills in the correct usage of the telephone are conducted in a class for commercial students at the Sheboygan (Wis.) Vocational School every Monday, it is reported.

Drills in the correct pronunciation of numbers, words, and words combined in sentences, have been arranged for short, polite telephone conversations.

THE OPERATORS' CORNER

By MAYME WORKMAN

Traffic Supervisor, The Illinois Telephone Association, Springfield, Ill.

VARIOUS tickets are used in connection with the handling of long distance calls. The "OUT" ticket is used for all outward calls, paid or collect. It is also used for recording reports, orders, and requests when the related Out ticket is not available.

The Inward ticket is used for recording all inward calls, paid or collect, on which a ticket record is required at the terminating toll center.

The Call Order ticket is used for recording all call orders left at inward and through positions. This form is also used when requests for the verification of BY reports are received and for memoranda made at inward and through positions.

As far as possible, details of a call, report or order should be written in the designated spaces on the face of the ticket and, in general, entries should be started as near the left of the space as practicable, leaving room for possible changes or corrections.

On an OUT or IN ticket, if any space is not large enough for all the information, write as much as possible in the proper space, then add "(below)" and finish the entry in the space for reports on the face or enter "(over)" and finish the entry on the back of the ticket.

On a Call Order ticket, extra notations should be entered in the "Attempts to Complete" space, using the back of the ticket only when there is no more room on the face.

USING designated spaces in making ticket entries. Value and importance of accuracy and legibility. No. 221

It is very important that ticket entries be made in a clear, neat and accurate manner. Under no circumstances should an entry be erased or written over. If it is necessary to make a correction, draw a line through the incorrect entry and enter the correct information.

Ticket entries should be made in black and, usually, small letters and no punctuation. However, proper names and titles should begin with capitals. Use capitals in entering "T" to designate an IN ticket call, "MX (or MXA)" to designate a multi-switch call; in printing the proper single letter to indicate the class of service or the rate; in printing the code to indicate the nature of a report, order, or request on a report ticket, etc.

The title "Mr." should be omitted from names entered on tickets but any other title should always be entered.

Only standard, authorized abbreviations should be used. Any other abbreviations used by the operator may not be understood by other persons who have occasion to refer to the ticket entries in connection with their work.

On a collect call in some instances the terminating toll center operator finds it necessary to make a record of the call—for example, on a call to a coin box station where the terminating toll center operator will collect the amount of the charge from the called party. In this case, the originating operator will pass her ticket and enter the letter "T" on the ticket at the top to indicate that the call will be timed by the terminating toll center operator and that her ticket will be used for billing. Difficulty in billing may result if the operator fails to make this entry.

Questions from Illinois Operators

1. Is an operator compelled to send a messenger if it is so desired? Some of my customers have been refused this service by operators in other towns.
2. If messenger service is furnished, should not a messenger be dispatched at once or the operator be notified if there is a delay?
3. What phrase do we use when a long distance operator (after waiting five minutes on a BY) leaves her operating number and insists that we call her back?
4. Will you please explain the importance of the "T" on two-number collect tickets?
5. Is there always a report charge on a messenger call?

The answers to these traffic questions are given on page **17.**

Joint Medal Award To Republican Valley (Neb.) Telephone Employes

A FEATURE of the celebration recently staged at McCook, Neb., to commemorate speedy rehabilitation in Republican Valley following disastrous floods of last spring was the joint awarding of a Vail bronze medal to the telephone employes of the area. Plaque on which medal has been mounted will be placed in Cook exchange building of Northwestern Bell

From Left to Right, Holding the Vail Bronze Medal Award and Citation Mounted on Plaque, Are Frank J. Hamilton, Local Manager, and Miss Anne Dillon, Chief Operator of the Northwestern Bell Company at McCook, Neb.; and W. F. Cozad, of Omaha, General Manager of the Nebraska and South Dakota Areas.

A JOINT Theodore N. Vail bronze medal award was made to the telephone employes of the Republican Valley, Neb., on October 23 for their initiative and resourcefulness during the disastrous floods in that area late last spring, resulting in the death of more than 100 persons, immeasurable suffering and privation, and vast destruction to public and private property. The medal is of bronze, mounted on a handsome walnut panel, along with the citation inscribed in parchment, as shown in the accompanying illustration. The panel will be placed in the McCook, Neb., exchange building of the Northwestern Bell Telephone Co.

The awarding of this honor was a dramatic feature of the celebration staged at McCook, Neb., to commemorate the speedy rehabilitation of the Republican Valley area. The presentation of the award was witnessed and listened to by a crowd of some 10,000 people, including approximately 40 telephone employes who had come from various exchanges in the valley to participate in the gala occasion.

In his presentation speech, W. F. Cozad, general manager of the Northwestern Bell Telephone Co., referred to the spirit of service of telephone employes as an all-important part of the industry. "But their spirit of service," said he, "is not confined to the telephone job. It is a part of their lives. It makes them alert to every opportunity for service so that, frequently, they go far beyond their regular line of duty to help someone in need of warning or assistance.

"You all know how the telephone men and women in the valley labored shoulder to shoulder with one another and with their neighbors in their efforts to save lives, to alleviate suffering and to maintain or quickly restore communication service in the flood-ravaged territory and between it and the outside world."

Frank J. Hamilton, McCook exchange manager for the Northwestern Bell company, accepted the award on behalf of the Republican Valley employes.

"We want you to know," he said, "that we felt amply rewarded for our labors during and after the flood by the realization that we telephone people were able to be of service to our friends and neighbors in the Republican Valley. What we were privileged to do for them is no more than any other group of telephone employes would have done under similar circumstances."

The award was made in recognition of the services performed by various employes when the flood was at its worst. Chief among these services were the warnings given by employes of the telephone company to inhabitants from two to seven hours before the flood reached their portion of the valley, and the facility with which the badly-needed

IDEALIZATION

As you idealize, so you can visualize; and as you visualize, so you will realize. No man without an idea ever saw anything and he never realized anything.

And when you take idealization out into the power-plant of visualization, you begin to see it, you begin to think it, you begin to eat it, you begin to sleep it, you dream it, IT IS YOURS: you visualize it. It then becomes a part of your life.—DR. A. E. STRATH-GORDON, before The Executives' Club, Chicago.

telephone service was restored after the flood waters had begun to subside. Many lives were saved by the prompt warnings sent out. The dramatic story was told fully in TELEPHONY of July 6. Because the acts of outstanding cooperation were so numerous it was decided to make a joint award in October instead of at the usual time for awards.

The citation accompanying the medal award reads as follows:

THIS CERTIFIES that a bronze medal offered under the terms of the establishment of Theodore N. Vail Memorial Fund and known as the

THEODORE N. VAIL MEDAL

For Noteworthy Public Service

has been awarded to

EMPLOYES OF THE NORTHWESTERN BELL TELEPHONE COMPANY

In the Republican River Valley for initiative, resourcefulness and effective use of telephone service, equipment and training, which not only saved many lives but also relieved much suffering and anxiety in an emergency.

On May 31 and June 1, 1935, the highest water and most destructive flood in the history of southwestern Nebraska rushed down the Republican River Valley resulting in more than one hundred deaths, immeasurable suffering and privation and devastation of towns, farms, roads, railroads and communication facilities throughout the valley two to three miles wide and 200 miles in length. Two to seven hours ahead of the flood, telephone employes becoming aware of the great danger pleaded with inhabitants who could be reached by telephone to notify their neighbors and flee to higher ground for safety; then with skill and courage restored service and rendered aid and assistance to the community.

Vail medals have been awarded on a number of occasions to Nebraska telephone people, and the one to the Republican Valley group is the third to be given in that state for acts of heroism during floods. It was on May 31, 1930, exactly five years before the Republican river flood, that Mrs. Millie Lothrop, Homer, Neb., operator, at the risk of her own life, warned residents of that town to flee from the torrents of Omaha Creek.

On September 28, 1928, Marjorie Twiss and Lydia Pautsch, Louisville, Neb., operators, maintained telephone service while flood waters poured into the central office. All three women received Vail medals.

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Wisconsin Convention Set for Late March

The Wisconsin State Telephone Association has selected March 24, 25 and 26 as the dates on which to hold its annual convention. President Walter J. Gallon, of Antigo, has announced that the meeting will be held at the Park Hotel in Madison.

As has been the custom for several years, the Wisconsin Locally Owned Telephone Group will hold its annual meeting in conjunction with the state convention, and plans are under way for a gathering of the Locally Owned Group on March 24.

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Telephone Growth in Argentina for the Year 1934

The largest telephone company in Argentina had a total of 181,649 automatic telephones in operation at the close of 1934, an increase of 8,061 over the preceding year, according to Assistant United States Trade Commissioner J. B. Smith, of Buenos Aires. Manual telephones numbered 85,447, an increase of 2,497.

Long distance cable and wire totaled 133,949 kilometers (one km. is equivalent to five-eighths of a mile), an increase of 23,691 km. Long distance calls totaled 7,822,604 during 1934, an increase of 308,482, and international calls, 59,308, an increase of 11,007.

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Chicago Directory Lists 10,000 New Names

The Illinois Bell Telephone Co. has commenced delivery of a new alphabetical telephone directory in Chicago. The new December book has 24 more pages than the one issued last June. The additional pages take care of more than 10,000 listings which have been added since the publication of the previous directory. Distribution of the new directories is expected to be completed by December 24.

PRIDE

By MISS ANNE BARNES

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

PRIDE causes many of us to ride for a fall. How often we allow personal pride to make us appear ridiculous to folks! Our relatives generally tell us what they think of our false pride; friends may think thoughts about us that would humiliate us deeply if we knew their nature; but the worst mistake we make along these lines is permitting pride to control our actions and remarks to people who do not know us except in a business way.

I speak from experience in this last-named situation. It happened this way: A number of years ago I contracted a very severe cold which, for a time, caused me to be very deaf. Whenever I think of the discomfort of this cold it is not of the physical misery I suffered, but rather of my efforts to keep people from knowing I was deaf—futile, humiliating efforts, too often.

For instance, when I went into a depot to buy a railroad ticket, I waited until other people had moved away from the window. Then I stepped forward and asked in very low tones for a ticket to so and so, and before the agent had time to quote the rate, I quickly added, "Will you speak up a little? I am temporarily deaf caused by a cold which . . ." But my remarks were cut short by the agent bellowing the rate at me so loudly that I dreaded to turn and face the people in the waiting room. I feared they might think I was arguing with the agent.

I sometimes went so far as to explain to a person sitting near me the reason for the shouting, hoping others (except the agent) would hear me.

I am always embarrassed now when I think of how many depot agents I handed that same line. Did it help me? No. Of course, it might now, because depot agents are so obliging they would likely write a remedy for my trouble and hand it to me with my railroad ticket. But don't try it. I don't intend to. . . again.

False pride always casts the shadow of its possessor across other folks' path. It is like a magnet constantly pointing to its possessor, but it also repels. Pride is not wrong when it tries to make us hide our troubles and wounded feelings from others, but it is a bad thing when it impels us to make others listen to or carry our burdens.

MORAL: Pride originates in the mind; if it is not there it will not be in our facial expression.

SPEECH TRAINING

By GLADYS CASNER

SECOND OF A SERIES of articles on voice technique, intended to give supervisor and chief operator appreciation of essentials of speech training so they can intelligently assist operators in overcoming speech difficulties. The course is dedicated to all telephone women of yesterday, of today and of a challenging tomorrow. This article discusses the physical organs of the human body that have a part in producing correct speech, defines speech terms and analyzes various elements of tone

BEFORE one may improve her voice she must know something about the physical organs of speech production. Speech is produced through four mediums—the breathing organs, the vocal apparatus (voice-box or larynx), the resonance cavities, and the organs of articulation.

From Mosher's "Complete Course in Public Speaking" comes this description of the voice-box:

"The voice-box is hinged to the top of the windpipe (trachea) and consists of five pieces of cartilage. The lower piece is shaped like a signet ring. Fastened to the top of the broad part at a slight distance apart are two more small pieces.

To these are joined two small bands of tough elastic fiber which form the inside edges of the two half disks stretching over the ring cartilage. These bands (the vocal cords) are joined in front to two shield-shaped cartilages, which form the enclosing walls of the voice-box.

The space between the vocal bands is called the glottis. Between the root of the tongue and the voice-box is a thin layer of cartilage called the epiglottis, which closes over the top of the voice-box during the swallowing process, thus directing all substances into the gullet behind it.

To all these cartilages are attached various muscles which raise, lower, and tip the entire voice-box, open and shut the epiglottis, tighten and relax the vocal bands, and narrow and widen the glottis."

SOUND OCCURS when breath passes through the glottis and vocal bands. If the bands are separated and relaxed, no sound is produced. When the bands are brought close together, vocalization is the result. The tones become higher as the bands are drawn closer and tighter, producing a high pitched voice. The loudness of the tone depends upon the strength of the breath current.

As the body of a musical instrument gives vibration, one's resonance chambers give vibration for the voice. The tone initiated by breathing is improved by resonance through cavities composed of:

1. Pharynx, which is the cavity shown in the accompanying diagram immediately over the larynx. It extends to the base of the brain.

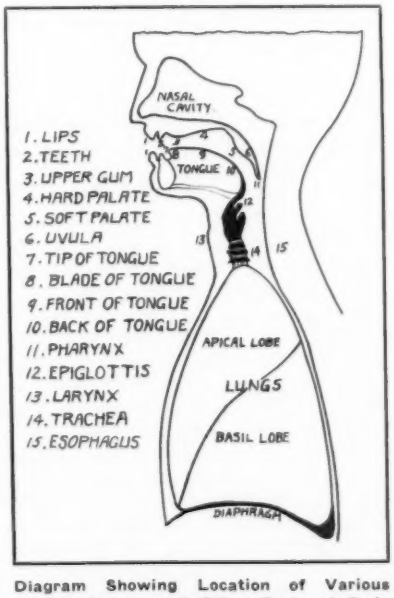

Diagram Showing Location of Various Speech Organs and Other Parts of Body That Cooperate in the Production of Correct Speech.

2. Nasal cavities, which begin at roof of mouth and extend to the base of the skull. They are especially important in producing *m*, *n*, and *ing* sounds.

3. Four small cavities in lower part of skull. The exact function of these sinuses or cavities is not as yet determined. These bony cavities are located in the cheek bones and just above the eyes.

4. Mouth, which is important because it is easily changed in size and shape.

If all these resonance chambers are functioning properly, the tone should be full and pleasant. The organs of articulation are:

1. Hard palate (roof of front part of mouth).
2. Tongue (of which the back, blade [middle] and tip have individual functions in speech sounds).
3. Teeth.
4. Lips.
5. Soft palate (forms an arching partition between mouth and nasal cavities ending in a projection called the uvula).

Just how these resonance chambers and organs of articulation act to produce thin, flat, harsh, muffled and nasal tones will be discussed in a later instalment on speech defects.

A SPEAKING voice that is clear, resonant, flexible and forceful must have good musical tones. These tones include four important attributes—quality, pitch, duration and energy. Quality depends mainly on resonance, pitch on the rate of vibration, energy on the motivating power, and rate on the duration of time in utterance. Conditions essential for free speech tones are ease

and relaxation of body, good breath control and correct voice placement.

VOICE QUALITY is a distinguishing part of one's personality; it is impossible to exactly duplicate it. It certainly helps make of one an "individual." Because of the physical differences in one's mouth, pharynx and nasal cavities, tones must be different.

From the book, "Effective Speech," by Gough, Rousseau, Cramer and Reeves comes this statement:

"The most common fault in connection with this characteristic of the voice is the habitual use of a colorless, vapid quality. It is illustrated in the humdrum recitation of a conjugation of a verb in a foreign tongue, and in repeating the multiplication table.

You certainly do not want your voice to suggest that you are spiritless or stupid. There is nothing more vital, if you wish to make an impression upon others, than a voice which has good quality; in other words, a voice which is free, has full resonance, which is pleasant to hear, and which is flexible enough to express varieties of meaning and of emotion."

If within the resonating passages there is a restriction or rigidity, the tone will be reinforced by inharmonious overtones. Quality depends on general mental and physical condition. Bad quality may be caused by a congested throat in producing a husky tone, by a misuse of the voice resulting in chronic hoarseness, by a stoppage of the nasal resonators due to cold congestion, catarrh, growths, or rigidity producing a "talking through one's nose" condition. Any tone produced without good resonation will be dulled, muffled or guttural.

PITCH is "the position of the sound at a given moment on the musical scale." It depends on the frequency at which the air waves strike the ear drum. The natural pitch of a voice depends upon the length and thickness of the vocal cords. The thinner the column of the vocal bands, the more vibrations are produced, and a higher pitched voice is the result. A child's voice and a woman's voice are ordinarily higher pitched than a man's.

It is necessary that one adjust her speech to her individual vocal bands to reach a key of average pitch. One of the outstanding faults of an operator is the cultivation of a voice that is keyed too high and will not allow for range, either up or down. Such a voice shows a lack of consideration for one's fellow operator and one's patron. This habit of speaking in a high pitched voice may be the result of a psychological condition of wanting to be conspicuous in a group and developing the ability to be "heard above the herd."

Definitions of Speech Terms

1. Speech is a succession of connected sounds that give meaning.
2. Pronounciation is the correctness of sound and accent of a word.
3. Enunciation is the pronounciation of vowels. Webster gives this definition for "enunciate": "To utter articulately; to pronounce."
4. Articulation is the pronunciation of consonants. According to Webster it means: "Distinctly uttered; spoken so as to be intelligible; as articulate speech, sounds, words, distinguished from other sounds, mechanical or vocal."
5. Diction is the clear and correct use of words. Webster defines it as: "Choice of words for the expression of ideas; the construction, disposition, and application of words in discourse with regard to clearness, accuracy, variety, etc.; mode of expression."
6. Inflection is the "Modulation of the voice; change in the pitch or tone of the voice, as in the departure from the monotone."
7. Tone is a sound, or the character of a sound considered as of this or that character, as a low, high, loud, sweet or harsh tone. It is "An intonation or inflection of the voice which distinguishes the meaning of a word from that which it has been pronounced with a different inflection."
8. Pitch deals with the location of the sound on the vocal scale.
9. Rate is the duration of time in utterance.
10. Quality is the nature or character of the sound.
11. Volume is the fullness or quantity of tone.

Pitch is important in giving emotional color to the voice. Anger and fear are associated with a high pitch, poise with medium pitch, and solemnity with a low pitch. Pitch gives a variety to speech and relieves the monotony which would make any voice uninteresting, regardless of word meaning. The monotonous voice is the "sing song" type of voice, rather trying on the hearer's nerves.

The glide of the voice from one level of speech to another is called inflection or speech tunes. These tunes give both quality and shades of meaning.

IN GIVING a report to a subscriber, these explanations of inflection may be of value:

1. A falling inflection indicates finality and decision. This tone will leave no doubt in the subscriber's mind. He will know you have made an honest effort to complete his call and a friendly attitude will be the result. Do not confuse this tone of deep conviction with one of arrogance which tolerates no questioning. Let the falling inflection denote both a willingness to please and a confidence in your past efforts.
2. A rising inflection denotes uncertainty, humility, or weakness in either mind or character. Its use is a breeder of disrespect for oneself, and even a better breeder of cancelled calls.
3. A compound inflection or "circumflex" inflection denotes a difference in words and meaning. It is used for sarcasm, surprise, irony, insinuation and doubt.

Here is an exercise for inflection:

Imagine a subscriber asking this question, "Have you had a report on my call in the last five minutes?" Make these responses:

1. Yes (simple affirmative).
2. Yes (certainty).
3. Yes (doubtful).
4. Yes (irritation).

Each operator should practice her phrases on *da, ud, ds, ux, cf, nrg, od, u, definite time*, once each month with a critical audience. A correct inflection is more important to denote interest and willingness than the words one uses to express herself.

ENERGY ranks next to inflection as a tool to convey meaning. Energy is the volume, intensity, or force of one's voice and is dependent upon the intensity of the air waves and its reinforcement by resonance. A voice without sufficient volume gives the subscriber the impression

that one is tired, melancholy, full of self-pity, or indolent. The voice of energy will give the impression one is wide awake, capable and confident.

An energetic tone is not necessarily a loud tone. A loud tone depends upon the amount of air which strikes the vocal bands, but if a small amount of air sharply strikes the bands, an intense tone is produced.

One must adjust the general rate of speed or duration of her speech to the thought and mood of the subscriber. A drawling voice is a source of irritation, especially to a business man. However, one must remember that it takes time for sound and energy to travel and that if one talks too rapidly, the words will seem to tumble into one another.

To understand how one's voice travels to the customer, I refer you to "The Magic of Communication," by John Mills. I believe that it is a fact men think and talk slower in telephone conversation than in ordinary discourse; therefore, to the operator, this quotation is exceptionally applicable:

"Speak clearly, if you speak at all,
Carve every word before you let it fall."

The importance of one's tone of voice in dealing with a customer cannot be overstressed. An unpleasant tone may cause the unfriendly feeling of a subscriber that word meanings cannot alleviate. If one's voice is cold, harsh or flippant—there will be a beginning of unsatisfactory relations. A warm, friendly voice should be the first requirement on a public relations program.

And in Review,
Do YOU Know?

1. What four organs of the human body are essential to the production of speech?
2. What is an outstanding cause of unpleasant speech tones?
3. How different meanings can be given to what you say by means of inflection?
4. What is meant by enunciation?

Another instalment in this series on "Speech Training" will be published soon.

• • •

Telephone Important Factor in Canadian Elections

The routine value of telephone service is a much-taken-for-granted story that seldom makes front-page position in newspapers unless amplified by the stress of circumstance or emergency.

One such circumstance that directs a searching floodlight upon modern communication and throws out the ebony form of the common-place telephone in bold relief is at the time of a general election. The recent polling period in Canada accentuated the service as never before.

Leading up to the election date, federal campaigners and speakers in their behalf employed the talk-tracks of radio more extensively than during any previous period of pre-election prolixity. On several occasions, country-wide, coast-to-coast networks were used, each made possible only through the hook-up facilities of the major wire-service organizations in the telephone and telegraph field across the Dominion.

Although the four prominent party leaders are reported to have traveled some 45,000 miles in the courses of their vote-seeking tours through the breadth and width of Canada, their voices traveled untold thousands of miles into hundreds of thousands of Canadian radio-equipped homes, reaching speaker-apparatus through the medium of almost inestimable dollars' worth of oral communication facilities linking broadcasting stations.

But it was on the night of October 14, and in the early hours of the following morning, that the humble telephone itself became clothed with a new and all-too-temporary air of indispensability. In newspaper offices everywhere in the country, in cities and towns; in short-lived election "headquarters" that had sprung up in every village and hamlet, and in the homes and even the offices of thousands of telephone users dotted all across the land, ears were glued to receivers as tongues clucked the familiar "Who's elected?"

There was no exception anywhere to the manual telephone switchboards that blazed electrically in central offices or in larger dial-using centers where exchanges—all of them extra-staffed—functioned to form the smoothly-efficient go-betweens for caller and called in disseminating election information.

And, despite increasing use of radio to convey interim and final returns to the homes of electors, an incalculable number of voters sought and received these reports over their telephones. A surprisingly large number of long distance calls of inquiry were reported in certain centers.

Every daily newspaper and many weeklies provided this telephone convenience for their readers, the service being made available through the cooperation of the local telephone authorities. In addition, and more than ever before on this latest occasion, loudspeaker public address systems—a direct by-product of telephone research—were employed to convey up-to-the-minute results to crowds of electors that thronged the vicinity of every sizable newspaper office in the country.

It is little wonder that in this circumstance the telephone and cooperating wire-service organizations received their meed of praise and appreciation in practically every Canadian newspaper published on October 15 this year.

COMING CONVENTIONS

Minnesota Telephone Association, Radisson Hotel, Minneapolis, January 28, 29 and 30.

Nebraska Telephone Association, Hotel Clarke, Hastings, February 12 and 13.

Wisconsin Locally Owned Telephone Group, Park Hotel, Madison, March 24.

Wisconsin State Telephone Association, Park Hotel, Madison, March 24, 25 and 26.

Iowa Independent Telephone Association, Hotel Fort Des Moines, Des Moines, April 7, 8 and 9.

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, April 22 and 23.

Indiana Telephone Association, Claypool Hotel, Indianapolis, April 29 and 30.

Kansas Telephone Association, Hotel Sunflower, Abilene, May 12 and 13.

Answers to Traffic Questions on Page 12

1. All towns do not have regular messenger offices. In this case, if the operator has been locally instructed to do so, she will arrange to secure the service of any available person, such as a school boy, an operator not on duty, a customer who is known to deliver messages, etc. In arranging for this service, the operator should proceed in general as though she were dealing with a regular messenger office.
2. Yes.
3. There is no phrase covering a condition of this kind. Refer the case to your supervisor.
4. The answer is contained in the introduction to the questions and answers.
5. If a messenger call is not completed after arrangements have been made to notify the called party to come to the telephone, the call is subject to a report charge.

SAFETY Is a Natural Instinct

By JAKE THE LINEMAN

MORNIN', BUDDIES! Webster defines the word instinct as "a stimulation from within or a natural impulse"; and his definition seems to have described the word pretty thoroughly. All of us have instincts, but when it comes to explainin' them, the best that we can do is to say that they are natural impulses.

The hen and the ant act today in the same manner in which they acted in the days when King Solomon was busy thinkin' up new alibis for each of his thousand wives. And even we highly-civilized humans possess instincts which date back to the days when our chief mode of conversation was by grunting, and raw meat was thought to be a rare delicacy. Most of our instincts are born in us and are as much a part of us as are the whiskers which we shave from our faces each day.

Animals are practically controlled by inborn instincts, and if you doubt that statement just read on and I'll show you that it's the actual truth: It's possible to place a crow's egg under a hen and after it has hatched, keep the baby crow away from other crows — and yet, when the crow creates a nest, the nest will be the same as the nests of other crows. A young crocodile, upon leaving its egg, will make a bee-line for the nearest body of water, just as though it had been there many times and was perfectly acquainted with the territory.

As soon as a baby turtle leaves its shell and peeps over the surface of the sand nest which was fashioned for it by its mother, it starts a direct line of march and never stops until it reaches the water's edge. Observations of turtles have shown that even though they may break their shells during the day, they never leave their nest until night. Experiments have shown that it is possible to place a baby turtle in a bag and carry it to a place some distance from the shore and then release it with its tail turned toward the water, and instinctively the turtle will turn about and take the shortest path to the water's edge.

The working bee has, since the beginning of time, created edifices which conform to the highest principles of geometry. Solitary bees and wasps construct complicated nests for their eggs. From one of the eggs there springs a worm which has never seen its mother and does not know the formation of the prison in which it is enclosed. And yet, as soon as the worm changes into a wasp or bee it will construct a similar nest for its own eggs.

Most animals possess inborn instincts which cause them to sense impending danger and to take steps to protect themselves. The mussels before the approach of a storm spin new threads to secure their hold on the rocks. Spiders enlarge their webs during good weather, but spin only short threads and hide themselves in corners during storms. Walruses have the habit of lying in great numbers along banks of ice. However, there is always one who acts as a sentinel and immediately upon the approach of danger he dives into the water and thus signals the others of the oncoming danger.

JAKE SAYS:
Golf an' Safety Programs are Similar In Some Respects—If a Good Score is to Be Made, You Have to Stick to a Definite Course and Keep Your Eye on the Ball.

The desire to hold on to life is probably one of the strongest of natural instincts. The animals have it and we humans have it. It is born into every living thing. And because the inborn instinct of staying alive is so strong, the instinct of safety is also strong.

The safety instinct is as natural in many persons as the habit of eating three square meals a day. Of course we do not roll into a lump, as a hedgehog does, on the approach of danger, but we do take other steps to protect ourselves and our lives. The big trouble is that some folks don't pay any attention to the safety instincts which are born in them—and therein lies one of the very good reasons why 99,000 people are killed in accidents every year.

Take an accountant who has worked at figures for years and give him a list of figures to add. His mind is so efficiently trained on the subject of figures that if during the process of addition he makes an error, that error is apparent to him at once and he immediately rechecks his work. A stenographer who pounds out hundreds of letters a month also catches her mistakes as she makes them. This is because her fingers are so trained that they immediately recognize a mistake as soon as it is made.

You and I recognize our errors in much the same manner. If we climb a pole without testing it to make sure it's safe, we know we are taking a chance. If we heat a pot of paraffin and never think of checking the temperature, we know that a fire may result. If we wear our spurs while performing ground work, we know that we may slip and run one of the spurs into our feet.

Our safety instinct makes us recognize such practices as unsafe—and yet some workers fail to pay any attention to the one instinct which will protect them from accidents and, as a result, accidents happen as regularly as the clock ticks.

Buddies, get into the habit of payin' close attention to those little warnings which run through your mind when you do something which may cause an accident an' you will find yourself observing the law of self-preservation and instinct of safety. An' believe you me, when you get to observin' those fundamentals, you are going to postpone and probably prevent a meetin' with Old Man Accident.

Wall, I'll get into high gear an' get goin'. So long, buddies.

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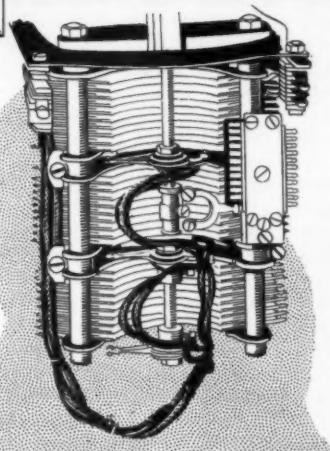
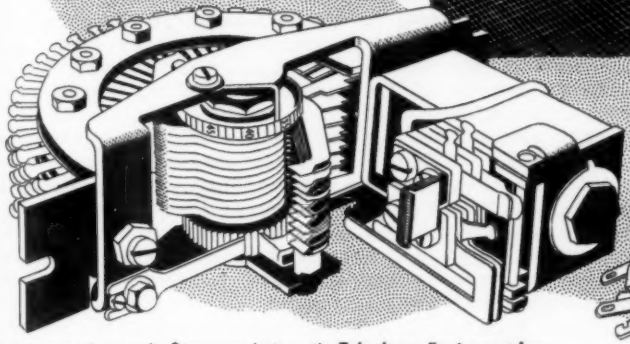
Attractive and Accessible Pay Station Installation

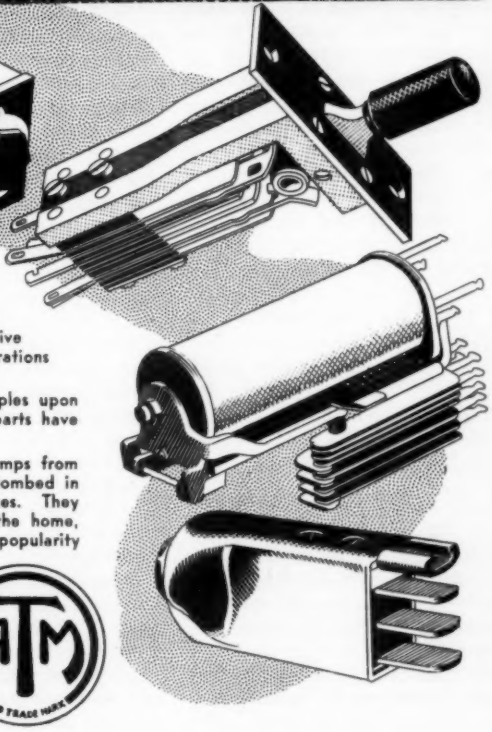
A pay station housed in an outdoor telephone booth, painted white inside as well as outside, has been installed recently by the Mountain States Telephone & Telegraph Co. for the Shane Oil Co. on the premises of the company's filling station which adjoins the new Colfax Public Market, at Colfax and Downing streets in Denver, Colo.

The telephone booth is located in an "L" created by the office of the Shane Oil Co. jutting out from the wall of the market. It is in the clear of the driveway, partially protected from the weather and is in a most convenient spot for patrons of the market as well as patrons of the filling station.

TAKING PARTS AS A WHOLE..







The component parts in Strowger Automatic Telephone Equipment have been proven in the most exacting manner possible, for, assembled into Automatic Exchanges, they have been required to provide that superlative degree of service—in every type of climate—which Telephone Administrations the world over consider synonymous with the name "Strowger".

But the greatest tribute to their design and to the engineering principles upon which the design is based, is the manner in which Strowger component parts have been adapted to other service in the daily life of the community.

They function in Electro-matic Traffic Signals; control electric street lamps from a central point; provide equipment for street fire alarm systems and, entombed in semi-darkness, operate telephones and signalling equipment in coal mines. They control apparatus in the British "Grid" scheme which carries power to the home, whilst their unerring accuracy in A.T.M. Totalisators adds greatly to the popularity of both the "Sport of Kings" and the amusement of the masses—the Turf and Dog-Racing Tracks.

AUTOMATIC ELECTRIC CO. LTD.
Strowger Works, Liverpool. 7. England.

Associated Company, and Export Distributors:
The International Automatic Telephone Co. Ltd.,
Norfolk House, Norfolk Street London, W. C. 2, England

Here and There In Telephone Work

Thousand Business Letters Answered by Telephone

Results of a four-year experiment made by the American Telephone & Telegraph Co. in substituting telephone calls for business letters in its own treasury department have been reported by J. K. Torbert of that organization. This department receives many letters each day from the company's 670,000 stockholders.

Even before the formal four-year experiment, officers of the department began handling some such inquiries by telephone. This now amounts to about 1,000 letters answered exclusively by telephone each month, no written confirmation being sent.

About 23 per cent of all incoming correspondence requiring answer is handled in this way, the average telephone toll being a little less than 65 cents a call. At present, most of the telephone answers are limited to points within a $2.00 person-to-person toll rate.

The same group of specially-trained telephone callers handles incoming calls to the department, most of the answering of letters being done at hours when these incoming calls are slack. It has not been found that written records are necessary or that stockholders answered by telephone demand written confirmations, the number of such demands having equalled less than ½ of 1 per cent.

Company officials consider the experiment a distinct success in pleasing inquirers, making personal contacts and giving an example of the value of telephone service in business. About 93 per cent of the stockholders called have been reached. One of the exceptions was a call which turned out to be to Sing Sing prison, where the authorities declined to call the stockholder to the telephone.

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"I Wonder Why" of a Telephone Engineer

By Ray Blain

"I Wonder Why" the Independent telephone manufacturers do not advise scientific writers and other general publicity writers of their late developments in the telephone art?

Modesty may be a virtue, but hiding one's light under a bushel seldom pays dividends. The technical editor of a large eastern daily newspaper recently wrote an entire column concerning the wonders of the new self-contained handset telephone in which the bells, induction coil and condenser are inclosed in the base and which eliminates the necessity for an external bell box attached to the wall or desk.

This editor boldly states that this remarkable instrument will be brought out in about two years. As a forecaster, in my opinion, he should run a weather bureau down South, where the natives claim that anyone who will prophesy on the weather is either a newcomer in that part of the country or just a plain darned fool.

A self-contained handset telephone has been generally used in Germany, Belgium, France and Sweden for a number of years. This instrument, however, was not considered satisfactory for use on the large systems of this country, due to poor quality of transmission and instability of the transmitter.

The Kellogg Switchboard & Supply Co., for a number of years, had a handset on the market which was, in a way, a pioneer in this country. It was of the general non-self-contained type used in some of the foreign countries.

To the best of my knowledge, the Automatic Electric Co. brought out the first modern self-contained telephone of the handset type in this country, using all standard parts, back in 1925. The Kellogg company's masterphone type of handset came out in 1928, I believe. Early in 1934 the Stromberg-Carlson company placed on the market a self-contained handset type telephone of entirely new and compact design, in which the working parts, such as ringers, induction coil, condenser, etc., were placed in the base.

The Automatic Electric Co. also brought out an entirely new and modern design monophone of the self-contained type in 1934, making use of all standard parts. During the present year the Leich Electric Co. placed on the market a fully self-contained handset telephone. The Kellogg company this month is announcing a new line of self-contained masterphones.

Despite all this the eastern newspaper technical editor gives us the wonderful news that this self-contained handset will not be available to subscribers for about two years, due to the fact that it will be necessary to retool factories for building in large quantities the special parts used in the construction of the sets.

This technical editor goes still further and tells us that this wonderful new telephone will also make use of a dial which is almost inaudible as it is twirled. Now, I have never especially favored a dial which emitted a sound not unlike our old-fashioned coffee grinder that I used to clamp firmly between my knees when I was detailed to grind coffee for Mother long years ago, but the silent dial is by no means a new development.

I seem to remember that the Automatic Electric Co. placed a silent dial on the market about 11 years ago which has never been changed, except for the addition of radio interference suppressors. I can not blame this newspaper technical editor for being favorably impressed by a demonstration which would put a vacuum cleaner salesman to shame, of equipment new to him.

Another reason why this editor was not up on the latest development of the telephone art is that he lives in one of the populous centers of the East, far from where the tall corn grows and the Independent telephone companies thrive —or merely survive, as the case may be.

While we may be charitable and excuse this editor for apparent lack of up-to-date facts concerning the "Tops" in telephone development, it is suggested that the Independents should trade in their old-fashioned, four-line band wagon for a new, 12-cylinder, super-charged, air-conditioned, publicity machine and use it in such a manner that even technical editors and writers on big eastern daily newspapers would have a faint idea of what is taking place in the Independent telephone section of this wonderful old world of ours.

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Telephone Man's Home Has 21 Telephones

"A House of 21 Telephones" was the subject of an illustrated feature story which appeared some time ago in the Detroit Free Press. The house in question—the showplace of the city of Caro, Mich.—is the home of W. J. Moore, president of the Moore Telephone System and a pioneer Independent telephone man, in both operating and manufacturing fields.

Although not the largest residence in the section, the Moore home is perhaps one of the most unusual in the country. Mr. Moore has made his home his hobby and in the past score of years has de-

voted his inventive and mechanical ability toward improving it.

Its very complete communication facilities add much to the convenience of its occupants and facilitate the management of the household. The 21 telephones are distributed as follows: One is located in each of the five bedrooms and three bathrooms; one is stationed on a desk in the den and another is close to the head of the couch in the den; one is located under the rim of each end of the dining room table; one is placed near each of the two favorite chairs of the host and hostess in the living room; and one is located in the radio room, laundry, basement, garage, clubrooms, kitchen and the upper hall.

The home includes every modern convenience, including a passenger elevator from the basement on which wood for the fireplaces may be conveyed in a rubber-tired wagon.

The house is an attractive, two-story structure, with many gables. At one side of it is a stone lighthouse; at one end is an attractive Japanese bridge and at the other a beautiful rock garden. On one side of the house is a large tiled swimming pool. By means of a trapeze arrangement which swings from a balcony near Mr. Moore's bedroom window, he can swing directly into the pool for a morning plunge.

On the second floor of the garage is a ballroom, clubrooms and gymnasium.

Floodlights scattered throughout the grounds enable members of the family and their friends to play tennis, swim or participate in other outdoor sports after nightfall.

Mr. Moore is a cousin of the late Elisha Gray, who probably missed becoming famous as inventor of the first telephone by a few hours. Relative to his early boyhood contacts with his cousin and his early experiences in telephone work, Mr. Moore speaks as follows:

"My cousin aroused in me an intense curiosity about telephones. Before I was through college, I had devoted much of my spare time to inventing telephone devices and had obtained a number of patents. These permitted organization of a telephone manufacturing company which I managed until shortly before the patents were to expire, when I sold the business.

People here were eager for telephone service when I returned home after finishing school. In 1892 we offered our first service. During the following years we extended our service and built exchanges in most of the towns of the Thumb, giving them their first telephone service.

Among these towns were Sandusky, Marlette, Bad Axe, Sebewaing, Port Austin, Caro, Vassar, Mayville, Unionville, Cass City, Gagetown, Fairgrove, Akron, Reese, Ubly, Frankenmuth, Fostoria, Caseville, Pigeon, Elkton, and Bayport.

Toll lines also were built to many others including Saginaw."

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Human-Interest Strip Sells Value of Telephone

Under the classified advertising heading, "New This Week," there appeared recently in the Exeter News-Letter, widely read county weekly in Exeter, N. H., what appeared to be a human-interest cartoon strip. It was headed, "Around Our Town," and contrary to the expectations of the reader—was an advertisement of the New England Telephone & Telegraph Co.

As will be seen from the reproduction on this page, five sketches showed as many busy, happy people. There was

AROUND OUR TOWN
An Advertisement of the New England Telephone & Telegraph Company
CARRIE'S FINE SEWING IS SOUGHT BY FRIENDS ALL OVER TOWN
HENRY'S KNOWLEDGE OF RADIO IS A BOON TO HIS FRIENDS, AND A HELP TO HIS POCKET BOOK
THELMA GIVES MANY A PARENT A NIGHT OUT BY STAYING WITH THE CHILDREN
AUNT ANN'S DOUGHNUTS ARE SO FAMOUS THAT SHE GETS ORDERS FOR DOZENS WEEKLY
MARY IS A FRIEND TO MANY A FAMILY AS PRACTICAL NURSE AND HELPER
AND IT'S THE TELEPHONE THAT BRINGS WORD TO EACH OF THEM WHEN THEIR SERVICES ARE REQUIRED, PAYING FOR ITSELF MANY TIMES OVER
ORDER YOURS AT THE NEAREST TELEPHONE BUSINESS OFFICE
TELEPHONE BUSINESS OFFICE
76 Congress St., Portsmouth, N. H.

Human Interest Cartoon Strip Used as Advertisement by New England Telephone & Telegraph Co. in County Weekly Newspaper.

Carrie, sewing contentedly. Said the caption: "Carrie's Fine Sewing is Sought by Friends All Over Town." Then came Henry, good-naturedly tinkering with a radio set, for "Henry's Knowledge of Radio is a Boon to His Friends and a Help to His Pocketbook;" then, a pleasant young woman, reading to two tiny tots their bedtime story—"Thelma Gives Many a Parent a Night Out by Staying With the Children."

The second row of sketches showed Aunt Ann taking a sizzling cruller out of the boiling fat. Her doughnuts are so famous that she gets orders for dozens of them weekly. Then comes Mary, the friend to many a family as practical nurse and helper, smilingly descending the stairs from the sickroom, a tray in her hand.

Finally came the sketch of the swinging sign that marks the business office of many a local telephone company... and with it the explanation of all the happy, busy people.

"...And it's the Telephone That Brings Word to Each of Them When Their Services Are Required. Paying for Itself Many Times Over." Then the suggestion is made: "Order Yours at the Nearest Telephone Business Office."

Newspapers such as the News-Letter have very little illustrative matter. Thus, an advertisement of this sort is especially effective.

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National Association's Plans and Actions

The executive committee of the United States Independent Telephone Association held its annual meeting in Chicago on December 6. Routine matters, including the adoption of the budget, were passed upon.

The matter of the injunction proceedings of the Bell companies against the Federal Communications Commission in regard to the uniform accounting system effective January 1, was discussed at length. It was felt that if an injunction against the FCC is secured, the commission would voluntarily extend the effective date of the accounting system as regards the Independent telephone companies.

There was also considerable discussion relative to the attitude the association should take on the proposed purchase of the property of the Northwestern Indiana Telephone Co., Valparaiso, Ind., by the Crown Point Telephone Co., Crown Point, Ind., a subsidiary company of the Illinois Bell Telephone Co.

This is known as the Valparaiso case and is scheduled for hearing before telephone division of the Federal Communications Commission on December 17. The history of the case dates back several years and has been fully covered in TELEPHONY from time to time. It is the first application made to the FCC for approval of the purchase of an Independent property by a Bell subsidiary company.

In considering its action in this case the executive committee of the United States association decided to file a general statement with the commission. The statement will set forth that the

association is opposed to any further acquisitions of Independent properties by the Bell.

The matter of teletypewriter service was considered by the executive committee. As a result of the discussion it was decided to actively investigate the teletypewriter situation with a view to making a more satisfactory arrangement, both as to compensation and procedure relative to obtaining contracts from customers, from the standpoint of the Independent companies. A conference with officials of the A. T. & T. Co. for discussion of the situation will be arranged.

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Tests Newspaper Ads Before Using in Dailies

By DONALD F. KINNEY

Milton E. Bernett, vice-president and advertising manager of the Mountain States Telephone & Telegraph Co., Denver, Colo., has, for quite some time, been devoting considerable study to practical methods by which advertising can be tested.

One valuable way this company gets a direct line on its newspaper advertising is to first try it out in suburban publications before using it in a metropolitan daily. The advertising department doesn't use this procedure with all newspaper ads, but does take advantage of it before using advertising with which there is the possibility of not the best results being obtained.

The suburban paper used to get this "line-up" is a weekly and is distributed to the 55,000 odd homes in the city itself. This suburban paper is similar to those published in other comparatively large cities throughout the country. The display space rates are comparatively low, being substantially less than $1 per inch. This makes it possible for the company to try out an ad at a reasonable cost, without risking the use of funds that might bring better results when used elsewhere.

The usual size used in the suburban advertisement is about two columns by 10 inches. On some occasions, an advertisement is run in only one issue, but at other times, when it has not been possible to get a fairly definite line on the advertisement, it is run the second time. This is only when the advertisement shows possibilities after the first publication; it is not repeated if the results appear to be unsatisfactory.

In some instances, the first publication of an advertisement might bring fair results when better returns were expected. A study of the advertisement often reveals a few changes that can be made to make it stronger, which helps greatly in preparing future copy.

The layout of an advertisement used in a suburban paper is not the same as that of one used in a metropolitan daily, this being because longer continuity can be used in the suburban publication, while the continuity for the metropolitan is considerably shorter. The appeal used in both ads is the same, when the "fest" made possible by the use of the suburban paper shows that it would be advantageous to use the same effort in the metropolitan.

"We can't necessarily measure the exact results received from an ad in the suburban paper," said Mr. Bernett, "but the use of it in this paper does give us a pretty good idea as to whether or not we should go ahead and use it in a metropolitan paper. The circulation of the metropolitan paper is several times as large, but this is out-of-town, because the city distribution of both are about the same.

"The cost of display space in the metropolitan paper is likewise much more than in the suburban, so we can be sure of getting the best results for our money and avoiding unnecessary waste, by finding out first the power of the advertisement at low cost before using it when unsatisfactory returns might result at a higher cost."

Readers Prefer Weekly Publications

The November, 1935, issue of Circulation Management contains a news item to the effect that a recent analysis of renewal percentages shows a marked advantage in favor of weekly publications.

Subscribers to weekly journals renew on an average of 72.5 per cent of the cases, while subscribers to monthly publications renew on an average of 61 per cent. Percentages ranged from 87.66 per cent (which incidentally is approximately TELEPHONY's subscription renewal percentage) for a $3.00-a-year weekly to 40.09 per cent for a $3.00-a-year monthly.

Plant Men "Swap" Ideas

Locating Cable Trouble With "Perfumed" Gas

GAS PRESSURE testing to locate leaks in cable sheath has proven very effective, so that if a break occurs in the cable, repairs can be made with minimum delay. A peculiar trouble, difficult to locate, was recently located and cleared by this means in the New Orleans-La Place toll cable. An article by A. C. Hollister, service supervisor, in a recent issue of the Southern Telephone News, tells how it was done and shows the advantages of gas pressure testing.

The New Orleans-La Place, La., cable connects the New Orleans toll office with La Place, a repeater station. This cable carries toll circuits to the southwest, west, and northwest out of New Orleans. It has about six miles of underground cable in its makeup and this section is under permanent gas pressure, having three pressure contactors at equal points along the cable.

In 1934 the construction department unloaded a quad in this cable, opening up several load coil splices. After wiping the sleeves they flash-tested the wiped joints. The permanent pressure was then placed back on the cable, but would not hold up. Charts were run on the cable and two leaks located, one in a seam and the other in a valve seat. Pressure was again equalized, but would not hold, showing a drift from the office to the end of the cable, indicating that the leak was near the end.

A paraffin plug was made about three-fourths of the length of the cable from the office and charts again run. The pressure would not hold, falling on a level from the plug to the end of the cable. Another plug was placed at the mid point of this section and the trouble showed between the two plugs, but no dip could be detected in the chart. All cable and sleeves in the manholes were soaped, but no leak could be detected.

It was then run down to four sections of cable. One of these sections was under the street car tracks on Carrollton avenue. It was decided that this must be the location of the leak and this section was blocked off and it was found that the leak was there. It was so small that it would leak out only four pounds in 15 hours, no trouble showing on the conductors.

Nitrogen gas has no odor, so "Colorderant," which is used by gas companies to locate leaks in natural gas mains, was put in the gas. "Asafoetida" was also placed in the gas hose. This "perfumed" gas was then put on the cable and a man placed at each opening of the duct to see if he could detect the odor and see which section the leak came from. Gas was applied all evening, but the leak was small and

the gas, being heavier than air, would not travel, so the tanks of gas were left at 12 pounds' pressure on the cable overnight and each section was plugged up with clay mud.

The next morning the nozzle of an electric blower was placed in the plugged duct and the gas that had escaped during the night blown out of each section. By placing a man in the opening to smell for it, the leak was found to be in a section about 40 feet long. By digging down in the center of this section and applying the blower the leak was definitely located.

The duct which was in the grass plot along the inside of the curb, was dug up and it was found that a key log on a dead-end pole had been placed across the duct line, and the messenger strain had caused the pole to sink, crushing and cutting a very minute hole through the sheath. The place was patched with a soldering iron, ducts repaired and holes filled up.

This case of trouble was hard to locate, but the overall cost of the work in locating and clearing was much less than pulling in a section of cable, and the transmission balance of the cable was not disturbed.

• • •

Standards on Electrical Insulating Materials

The latest compilation of A. S. T. M. Standards on Electrical Insulating Materials presents under a single cover A. S. T. M. standards that are in widespread use for testing and evaluating electrical insulating materials. The 1935 edition, 311 pages, gives 25 standardized methods of test and ten specifications. The method of testing shellac has not been published heretofore.

During 1935, revisions were made in a number of the test methods including those covering the following: Varnishes, solid filling and treating compounds, molding powders, sheet and plate materials, laminated tubes and round rods, natural mica and flexible varnished tubing. Specifications which have been revised cover the following materials: Friction tape, rubber insulating tape and flexible varnished tubing.

The current report of committee D-9 outlines the extensive research and standardization work under way, gives a modified Baader saponification test for insulating oils and proposed requirements for rubber insulating blankets.

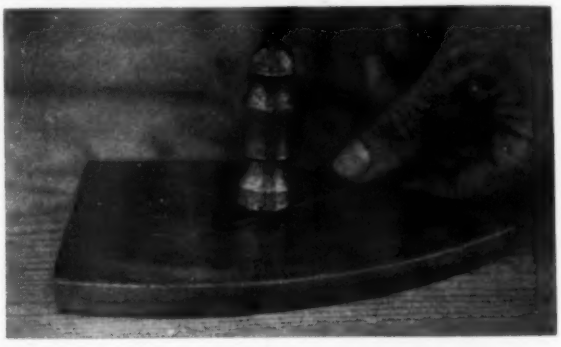
The following materials are also covered by specifications or tests given in the book: Rubber gloves, rubber matting, electrical cotton yarns, silk and cotton tapes, pasted mica and slate; also, black bias cut varnished tape; asbestos yarns, tape and roving; untreated paper; electrical porcelain; insulating oils. Other tests which are included cover procedures for thickness testing, impact, thermal conductivity, resistivity.

Copies, bound in heavy paper cover, can be obtained from the American Society for Testing Materials, 260 S. Broad St., Philadelphia, at $1.75 per copy.

• • •

Useful Ideas: Iron Plate Is Handy Pounding Block

A handy and suitable block for small jobs of pounding and light rivet work is very often a difficult thing to "dig up" for the workbench. Something which is very practical and easily obtainable is the bottom or sole plate of an old electric flat iron, as shown in the accompanying illustration. The metal is hard, and the arrow-like shape of the plate makes it easy to handle and easy to work with, particularly on the top of a small workbench.



This Convenient Iron Pounding Plate Was Formerly the Sole Plate of a Discarded Electric Iron.

One of these plates is, of course, readily procured from any electric shop where old irons are turned in for new ones. An iron is easily taken apart and this particular part is invariably a discard.

• • •

Lowering Telephone Conduit In West Hartford, Conn.

An interesting underground conduit job was completed in West Hartford, Conn., a short time ago by the Southern New England Telephone Co., of New Haven, Conn. It was necessitated by the announcement of the decision of the state highway department to pave Farmington avenue between Prospect street and the bridge over Trout Brook. Because the street grade had been cut when the existing pavement was laid a number of years ago, there was insufficient cover over the telephone company's conduit to allow for repaving operations without damage to the plant.

In this particular case more cover than usual was required, for it was proposed to place 12 inches of gravel, seven inches of concrete and three of asphalt—a minimum excavation of 22 inches—to avoid trouble sometimes experienced in holding a concrete pavement on the clay soil peculiar to the area. Because of minor cuts in the existing grade, and to protect the telephone cables from heavy road-building equipment, it was necessary to lower the conduit.

Studies made by the company's engineering department of the future conduit requirements of that section justified the cost of installing additional ducts if done in connection with lowering the existing conduit. It was estimated that it would be necessary to lower the line for approximately 60 per cent of the total distance of 6,300 feet and, as this necessitated a trench wide enough to allow for additional ducts, it was decided to install four of these.

The existing conduit was of two types, one half of single tile completely encased in concrete and carrying four cables, the other half of four-multiple tile carrying three cables. Lowering the multiple tile was fairly simple. Long planks were placed under the tile and suspended by 2,200-pound strand from timbers laid at frequent intervals across the trench.

After a section was suspended, excavation was completed to the right depth, and graded. Then the tile was lowered progressively from one end of the section to the other by means of ropes. As each section was lowered, all joints were wrapped with cheese-cloth and plastered as in a new installation.

Lowering the single tile was much slower and more complicated, because of the weight of the concrete casement and the necessity for lowering long sections without breaking this casement. The method used was to suspend the line by turnbuckles placed approximately six feet apart for a distance of from 175 to 200 feet.

When the excavation was completed, a man was placed at each turnbuckle. Upon word from the foreman, each man would give the turnbuckle one complete turn. This was continued until the section was lowered. Although the actual lowering of a section required but about 40 minutes, it sometimes took a whole week to prepare for the 40-minute job. The estimated weight of a 200-foot section of this line was 40 tons.

Open New Radio-Telephone Link

DOMINICAN REPUBLIC telephones now connected with United States as radio-telephone service is inaugurated by Dominican Telephone Co., subsidiary of the Associated Telephone & Telegraph Company

ANOTHER West Indian neighbor of the United States was brought into telephone communication with this country recently when commercial radio-telephone service was opened with the Dominican Republic. This link in the telephone network that now connects nearly all New World countries, was made possible by the establishment of a radio-telephone station by Cia Dominicana de Telephonos (a unit of the Associated Telephone & Telegraph Co. group), to connect with a station of the American Telephone & Telegraph Co. at Miami, Fla.

The service was formally opened on October 31 with an exchange of greetings between U. S. Secretary of State Cordell Hull and Senor Don Elias Brache, Foreign Minister of the Republic.

Secretary Hull, speaking from his office in Washington, told the Dominican official that the new link should aid in a better understanding between the two nations. He asked Senor Brache to extend greetings to Generalissimo Doctor Trujillo Molina, the President of the Dominican Republic.

Senor Brache, in replying, expressed great pleasure in the interchange of messages and concurred in the view that the new service would aid in strengthening the friendly and cordial relations between the two countries.

Following this exchange, Secretary Hull spoke with Walter Reinke, United States Consul at Santo Domingo. Senor Don Raefel Brache, Dominican Minister to the United States, then spoke with the Foreign Minister, his brother, and the new communication link was pronounced officially opened.

The Dominican Republic, as shown in the accompanying map, occupies the eastern part of the island of Hispaniola, the second largest of the Greater Antilles. Its area is approximately 19,000 square miles and it has a population of approximately 1,200,000. Primarily an agricultural country, it produces sugar, cocoa, tobacco and coffee in large quantities for export.

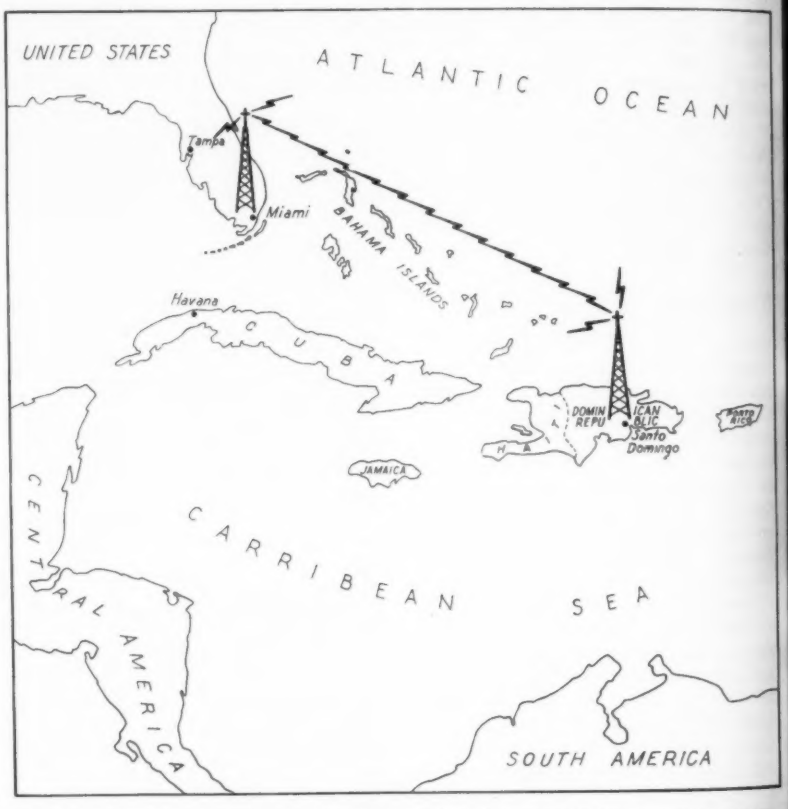
The capital, Santo Domingo, is the oldest city in the Western Hemisphere founded by Europeans. It has many points of great historical interest, including the tomb of Christopher Columbus, in the beautiful cathedral of Santo Domingo, and the palace of Don Diego Columbus (first viceroy and a brother of the great discoverer).

Compania Dominicana de Telefonos, C. por A. operates local and long distance telephone service throughout the Republic and in recent years has made a number of notable service improvements. It has installed modern Strowger automatic equipment in three of the larger cities—Santiago, Puerto Plata and San Pedro de Macoris—and has made extensive additions to the central office equipment in Santo Domingo. A modern toll system interconnects the principal cities and makes the new radio-telephone service available to communities throughout the Republic.

Officials of the Associated Telephone & Telegraph Co. in commenting on the successful completion of the United States-Dominican link, called attention to the Associated company's extensive program to provide telephone service via radio-telephone to communities, where, because of economic or geographical barriers, physical telephone circuits cannot be constructed.

The Associated group has pioneered in the development of wireless telephony and now has more than a score of radio-telephone links in operation in various parts of the world. Today, short wave radio-telephone apparatus, as developed in association with the engineers of Automatic Electric Co. and Associated Electric Laboratories, Inc., is serving in Western Canada, in Colombia, S. A., and in the Carribean area, as well as in the United States-Philippine service.

A number of additional Associated group projects—either under way or shortly to be initiated—will employ radio-telephone links, both in local channels to supplement the land lines of local telephone companies, and in the establishment of cooperative connections with international organizations.



Map Showing Location of Dominican Republic Which Was Recently Connected with the United States by Radio-Telephone Link.

Talking turkey

BY LONG DISTANCE BRINGS SALES AND PROFITS TO 10,000 TURKEY GROWERS

THE turkey market has expanded since the Pilgrims and Indians first talked turkey on Thanksgiving Day, 1621. Today's buyer and seller are often a continent apart. But they still talk turkey—as quickly and clearly as if they were face-to-face—by Long Distance telephone service.

The Northwestern Turkey Growers' Association, for example, with 10,000 farmer-members operating through forty local co-operatives in eleven western states, is a heavy user of Long Distance during the selling season. Mr. Herbert Beyers, General Manager at the home office in Salt Lake City, talks to sales agents in New York, Los Angeles and San Francisco, several times a day . . . obtaining up-to-the-minute reports on demand and supply at different points . . . routing shipments to the most favorable markets. He considers Long Distance a fast, modern, economical way to co-ordinate sales activities . . . reports one sale of $300,000 worth of turkeys to an Eastern distributor after two telephone conversations.

Turkeys, tractors, textiles, paper, petroleum — firms in many fields have profitably applied Long Distance to production, shipping, credit, administration and other departments, as well as sales. Probably your business can benefit by their experience. Especially if you use Long Distance on a *planned* basis. Talk it over with your local Bell Company. No obligation.

Activities of Commissions and Courts

Standard Toll Practice for Ohio Companies

Conferences are expected to be held by executives of Independent telephone interests in the state of Ohio to develop what course of action may be taken as a result of the order issued by the Ohio Public Utilities Commission on December 3 on the complaint of the Ohio Bell Telephone against the Northern Ohio Telephone Co., in which it was alleged that the defendant company was delaying the handling of long distance messages by failure to adopt the standard practice such as used by the Bell company.

The complaint was directed principally at the manner which long distance messages were handled in the Port Clinton exchange of the Northern Ohio company, in reply to which the defendant contended that the standard practice of the Bell company was not essential to good service, and that its own system had proven very satisfactory.

In passing upon the complaint the commission order directed: "That forthwith upon receipt of a copy of this order that the defendant, the Northern Ohio Telephone Co., cease and desist from its said practice of so interrupting, delaying and ticketing said incoming long distance messages at its Port Clinton exchange and that defendant observe the established practice with respect to such messages followed by it in all other exchanges and by all other telephone companies at their respective exchanges throughout Ohio. Further,

"That the defendant in the case of all outward long distance messages from its tributary exchanges not destined to privileged points, cause the tributary operators to pass the calling subscriber forthwith to the toll center of the calling party's tributary exchanges, such calls to be thereupon and thereafter ticketed, timed, and recorded and handled to completion by the toll center operator of such toll center."

The testimony offered during the hearing on the complaint was closely fol-

As a CHRISTMAS Gift

WHY NOT A TELEPHONY Subscription?

A Year's subscription to TELEPHONY! A more practical Christmas gift for anyone engaged in telephone work could not be purchased for the small sum of $3 (or less for two subscriptions or more). This suggestion in years past has helped many telephone people and their families to solve their Christmas gift problems, bringing delight and profit to the recipients all through the year.

Success and advancement come to those who have prepared themselves for larger tasks and who have applied themselves to the tasks at hand with a bit more diligence than the average person. Through careful reading and study of the weekly issues of TELEPHONY any telephone employe can broaden his knowledge of all departments of the telephone business, thus increasing his value to his (or her) company and equipping himself for greater responsibilities and advancement in the future.

Why not this year present someone—even yourself—a year's subscription to TELEPHONY, with the Season's Greetings? Until December 20 special rates are being offered: Two new subscriptions, $5; three subscriptions, $6.75. The single subscription rate is $3.

The initial issue of your Gift subscription will be posted to reach the intended recipient by Christmas and a letter sent by first class mail will announce that the donor is presenting the subscription with the Season's Greetings.

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lowed by a number of Independent telephone executives. It was realized that a decision favorable to the complainant would be far-reaching and would be adverse to the interests of the more than 200 Independent telephone companies in the state, as it was felt that it would place the Bell company in a position not to be desired by the Independents in relation to the handling of long distance messages.

At that time it was intimated in certain quarters that, in the event of an adverse ruling by the commission, it was quite probable that the case would be carried through the courts, and the indications are now that the Independents will not choose to rest content under the ruling as directed, without having the matter passed upon by the courts.

• • •

FCC May Ask More Money for Bell Probe

Pressing its inquiry into ramifications of the American Telephone & Telegraph Co., the Federal Communications Commission may ask Congress for additional funds to complete the investigation. This was reported in Washington newspapers on December 7. The $750,000 provided by Congress for the A. T. & T. inquiry was the largest sum ever authorized for such an investigation.

Commission records show 215 accountants, engineers, lawyers, stenographers and clerks are engaged exclusively in the investigation. The monthly payroll as of December 1 was $54,000. So far $248,000 has been spent, and the inquiry is scarcely in full swing.

Commissioner Paul A. Walker, director of the investigation, said:

"We could spend ten million dollars on an investigation of this kind if we were to make a thorough study of all rate structures."

• • •

Hearings in Wisconsin Case Nearing Completion

The Wisconsin Public Service Commission, on December 5, heard oral arguments by attorneys for the Wisconsin Telephone Co. and the commission on the latter's May 31 order reducing the company's depreciation rates about $700,000 a year.

Frederic Sammond, Wisconsin Telephone Co. attorney, of Milwaukee, attacked the rates set by the commission and urged that any order issued affirming the original order be issued at the same time an order is made winding up the general rate case.

After oral arguments, Commissioners A. R. McDonald and Fred S. Hunt resumed hearings in the general rate case with the expectation that all testimony would soon be completed in the four-year-old proceeding.

The depreciation order should stand on its own feet and, if issued earlier, can be litigated in court and the question settled before the general rate case is decided by the courts, Alvin C. Reis, commission chief counsel, said.

In its May 31 order, the commission pointed out that depreciation allowances to cover replacement or retirement of plant and equipment as they wear out or become obsolete have a direct bearing on both rates and service to customers.

Attorney Sammond questioned the authority of the Wisconsin commission to fix depreciation rates for the company.

A motion to strike from the record two exhibits offered by an engineer for the commission because of numerous errors was sustained on December 6 by Commissioners Hunt and McDonald. These exhibits offering comparison of savings considered possible by installing dial equipment different from that now in use in Milwaukee (See TELEPHONY of November 9, page 26) showed errors totaling $244,560, Reid Wedell, of Chicago, special engineer for the commission, admitted under cross-examination by Frederic Sammond, company counsel.

• • •

Briefs Filed in Alabama Rate Case

Briefs were filed November 25 with the Alabama Public Service Commission, Montgomery, by opposing counsel in the general investigation of rates and charges of the Southern Bell Telephone & Telegraph Co., defending their respective positions.

The brief filed by Attorney General A. A. Carmichael for the state and by Horace Wilkinson for the city of Birmingham supported their claims that a 40 per cent cut in telephone rates is justified for the state of Alabama.

The briefs filed by E. D. Smith and Robert E. Steiner, Jr., for the Southern Bell Telephone & Telegraph Co. contend that the existing rates are fair and reasonable and that any reduction would "result in confiscation of its property."

Both sides were granted until December 9 to file supplemental briefs before the case was taken under advisement.

• • •

Court Upholds Relief Tax on Utilities

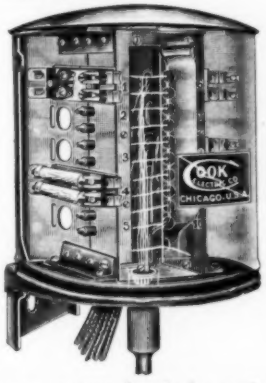
The right of the city of New York to tax utilities for relief fund was upheld on December 9 by Supreme Court Justice Joseph M. Callahan. Approximately $25,000,000 in taxes already collected was involved.

The decision was made on application by the Standard Gaslight Co., a little known subsidiary of Consolidated Gas $25,854 in special taxes collected by the Co., to direct the controller to credit

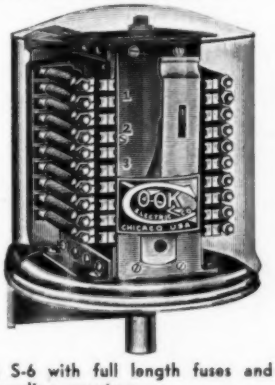
COOK

protected terminals are recognized throughout the world because they have proven satisfactory in the past and are improved for the future.

These terminals provide every modern, desirable, practicable feature with the assurance of satisfactory service.



There are no experiments in, or to these terminals, nothing that has not been tried, and tested for years in the field.



Cook S-6 with full length fuses and non-grounding arresters.
Cook S-16-D with demountable protector mounts.
Cook S-7-A with screw type fuses and non-grounding arresters.

FOR YOUR PROTECTION SPECIFY COOK

Cook Electric Company

CHICAGO

"Telephony's" Engineering Data

By B. C. Burden

Index, Pole Line Construction.
Dec. 14, 1935.
No. 14-B, Page 4.

The distance of the anchor from the base of the pole, referred to as the *lead of the guy,* is an important factor in guying, for the reason that the strain on the guy depends on the angle between the pole and the guy. This is best illustrated by the fact that if a guy for a 20-foot pole were placed four feet from its base, the strain on the guy would be increased seven times over what it would be if the guy had been located 20 feet away as shown in Fig. 5.

As the lead of the guy is increased above certain values, the advantage in decreased strain on the guy drops rapidly so that it does little good to place guys with extremely long leads. *The optimum point is reached when the lead-to-height ratio lies somewhere between* 1.0 *and* 1.25.

This means that the lead of the guy should be equal to, or slightly greater than, the height of the pole, and that

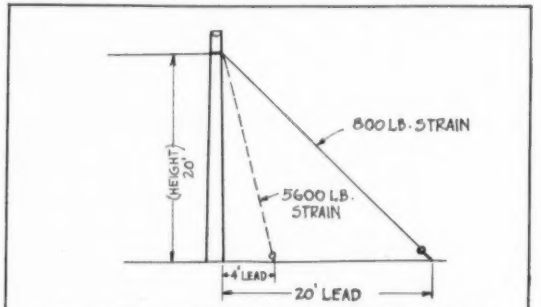


FIG. 5. EFFECT OF SHORT AND LONG LEADS IN GUYING.

caution should be exercised in installing a guy with a short lead to see that the guy and its anchor are sufficiently strong to withstand the strain. The best construction is obtained when the lead of a guy is made equal to the height of the pole, a simple rule to remember.

In the guying of a corner pole another factor enters into guying considerations—the "pull" of the poles. This term refers to the amount of the bend in the pole line. It is expressed as the distance to a line drawn from a point located on the center line of the lead 100 feet from the pole on each side, as illustrated in Fig. 6.

When the pull of the pole is small, there is little strain on the guy, but as the pull becomes greater, the stress increases proportionately until the maximum pull corresponding to a dead-ending point is reached.

To insure sufficient guying strength for ordinary applications, it is good practice to use No. 6 B.W.G. steel wire for light guying, as in rural bracket and four-pin crossarm leads, and 6000-lb. steel strand for heavier guying. It is seldom

"Telephony's" Engineering Data

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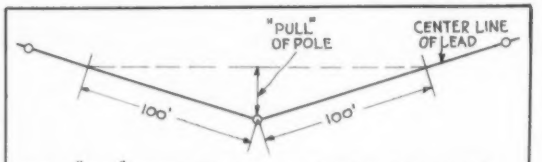


FIG. 6. "PULL" OF CORNER POLE AT BEND IN POLE LEAD.

that heavier strand need be utilized, provided that the proper lead-to-height ratio is used. Where stronger guying is required, two 6000-lb. steel strands, with separate anchor for each, may be used.

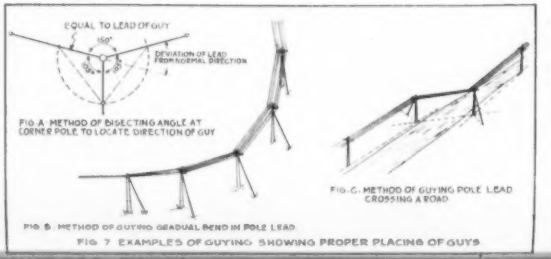
It is important that the proper grade of steel strand be used. Cheaper, and consequently softer, grades should be avoided because they tend to stretch and thus nullify the purpose of the guy. Crucible steel, although hard and consequently more difficult to handle, will not stretch appreciably and should be used for all guying applications. To insure maximum safety and long life, guy wire, both strand and solid, should be double galvanized.

Proper Direction in which Guy Should be Placed

Another principle of guying which should not be overlooked, concerns the placing of a guy in such a way as to properly take up the strain exerted on it. If the guy is improperly set, the pole so reinforced may still be under more or less strain and will probably give in the direction of the pull unless it is strong enough to resist this strain.

A simple rule to remember, when attaching a guy, is to so place it that it will directly oppose the pull in dead-ending or head-guying in a straight section. In the case of corner poles, where a single guy is utilized, the guy should be so placed as to bisect the inside angle of the lead. Fig. 7 gives several examples of this method.

It is not necessary to guy all bends in a pole lead. If the deviation from the normal direction of the line (Fig. 7-A)


EQUAL TO LEAD OF GUY
150°
DEVIATION OF LEAD FROM NORMAL DIRECTION
FIG. A. METHOD OF BISECTING ANGLE AT CORNER POLE, TO LOCATE DIRECTION OF GUY
FIG. C. METHOD OF GUYING POLE LEAD CROSSING A ROAD
FIG. B. METHOD OF GUYING GRADUAL BEND IN POLE LEAD.
FIG. 7. EXAMPLES OF GUYING SHOWING PROPER PLACING OF GUYS

"Telephony's" Engineering Data

By B. C. Burden

Index, Pole Line Construction.
Dec. 14, 1935.
No. 14-B, Page 6.

is only a few degrees—corresponding to a pull of five or six feet in light leads, such as bracket or four-pin crossarms—the pole at the bend need not be guyed unless the ground is so soft or sandy as to create the danger of the pole pulling over under a steady though slight strain. For heavier leads, the permissible deviation without guying the corner pole should be much less; in fact, if the wire lead is very heavy, it is safer to guy corner poles where the deviation is noticeable to the eye.

A single guy is often sufficient reinforcement for all except extreme bends in an aerial wire or cable lead. However, two guys installed at the corner pole of a pole lead, deviating considerably from the normal direction (Fig. 8),

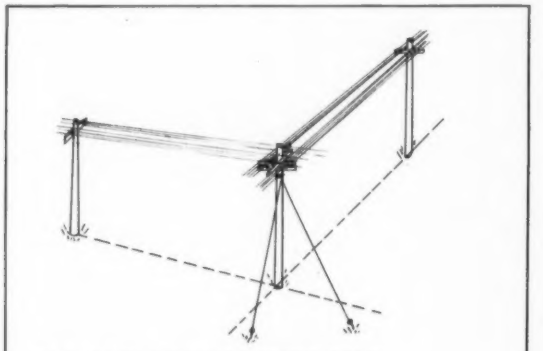


FIG. 8. DOUBLE GUY AT CORNER POLE.

will better distribute the strain on the guys and stabilize the pole more satisfactorily. When the bend is a right angle, each guy is placed to directly oppose the pull exerted by the corresponding section on each side of the bend.

Types of Guys According to Method of Anchoring

In the construction of a pole line, varying conditions—such as the type of soil, limits imposed by the proximity of property drives, and local or state regulations—require more than one method of anchoring guys. The following are some of the methods usually employed in pole-line guying:

(a) Buried anchor (patent or log types); (b) pole to pole guying; (c) stub guying; and (d) tree guying.

Guying to buried anchors is the most commonly used method. An object, such as a patent anchor, or one improvised from heavy creosoted logs, planks, or concrete blocks, is buried at the proper depth and the guy attached to a rod extending to the anchoring device. Various types of anchors and their correct use will be discussed in a future data sheet.

city to the account of the company under the regular franchise tax. Justice Callahan denied the application.

The application was viewed as a test of the city's right to impose taxes in addition to the franchise and real estate tax on utilities, under the special emergency tax law of 1933, amended in 1934. The company held the city could impose only the two taxes previously assessed.

Justice Callahan ruled that the purpose of the special legislation was to give the city the unconditional right to impose additional taxes on any source which it saw fit, in order to increase income needed for relief.

• • •

Company to Improve Service, Raise Rates

The Kansas Corporation Commission recently authorized the Eastern Kansas Telephone Co. to install a new common battery telephone system in Burlington, Kans., to replace the old system and to increase the rates there when the new system is completely installed and in use.

The commission held a hearing in the case a short time ago, at which time a number of subscribers told of the poor service and expressed themselves as being in favor of the new system and better telephone service. A few subscribers protested against any rate increase.

However, the commission found that the number asking for the improved service, even with increased rates, exceeded the number opposed, and found that the company's showing of the need of the improvement in the plant was sufficient to justify authorizing the improvement.

The company's proposition includes improving the rural lines as well as those in town, but there is to be no increase in rural rates at any time and no increase in town until the new plant is complete.

Work on the improvement is expected to begin in the very near future.

• • •

Ohio Bell Petitions to Issue New Stock

Authority to sell at par $38,800,000 of its stock, was asked in a petition filed with the Ohio Public Utilities Commission by the Ohio Bell Telephone Co. on December 7. It was stated in the petition that the proceeds of the sale, if authorized, are to be used to reimburse the treasury of the company for an account of $38,630,914.33 on uncapitalized expenditures.

On March 1, 1931, the company had an uncapitalized expenditure balance of $38,630,914.33 and since that time expenditures for new property against which was retired old property, provided a net addition to the company's property of $288,651.19 and bringing the total uncapitalized capital expenditure of the company of $38,919,365.52, as of October 1, 1935.

During this period there was an expenditure of approximately $4,722,000 to retire company bonds, the petition cited, and at the same time there were some property removals made against the company's balances, leaving a total of $119,565.52 yet to be capitalized.

The commission had validated more than $34,000,000 of the expended balance prior to 1930 according to the petition which was filed by Henderson, Burr, Randall & Porter, general counsel for the Ohio Bell company.

• • •

Additional Radio-Telephone Circuits for Great Lakes

The Lorain County Radio Corp., of Lorain, Ohio, which operates ship-to-shore radio-telephone service on the Great Lakes, has filed application with the Federal Communications Commission, Washington, D. C., asking for a permit to construct two more radio-telephone circuits along the Great Lakes.

The two new circuits would give complete coverage for the entire Great Lakes area 24 hours a day, the petition stated, and cost of construction was estimated at $12,000.

Commission Rulings and Schedule of Hearings

Federal Communications Commission Washington, D. C.

December 2: Application filed with the Telephone Division by the New England Telephone & Telegraph Co. and the American Telephone & Telegraph Co., requesting authority to supplement existing facilities between Worcester and Fitchburg, Mass.

December 4: Indefinite postponement of hearing, originally scheduled for January 8, on citation against the Santa Barbara Telephone Co., of Santa Barbara, Calif., to show cause why it should not be required to file responses to orders Nos. 1, 2, 3, 5, 6A and 9 of the Telephone Division.

December 11: Hearing in the offices of the Missouri Public Service Commission in Jefferson City, Mo., before an examiner of the Telephone Division of the FCC concerning:

The applications of Harry D. McBride, Allen W. Mothersill, Charles A. Vedder and Frederick W. Wulfmeyer, all of St. Louis, Mo., to hold positions as officer in two or more companies in accordance with Section 2121 of the Communications Act.

To determine whether the Cass County Telephone Co., of Harrisonville, Mo., comes under the jurisdiction of the FCC.

December 13: Hearing in the offices of the Missouri Public Service Commission in Jefferson City, Mo., before an examiner of the Telephone Division of the FCC to determine whether the Capi-

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tal City Telephone Co., of Jefferson City, comes under jurisdiction of the FCC.

The Telephone Division denied a request to postpone the hearing of the Capital City company and of the Cass County Telephone Co., of Harrisonville, Mo., the latter hearing being scheduled for December 11.

December 17: Hearing before Telephone Division on joint application of Northwestern Indiana Telephone Co., Valparaiso, Ind., to sell and Crown Point (Ind.) Telephone Co. (a subsidiary of the Illinois Bell Telephone Co.) to purchase the property of the Northwestern Indiana company.

January 14: Hearing in on citation against the Chillicothe (Ohio) Telephone Co. to show why it should not furnish certain information asked by the FCC.

Alabama Public Service Commission

November 26: Briefs filed by opposing counsel in the general investigation of rates and charges of the Southern Bell Telephone & Telegraph Co., defending their respective positions.

Illinois Commerce Commission

December 3: Hearing in Springfield on joint application for an order consenting to and approving and authorizing a merger between the Illinois Consolidated Telephone Co. and the Illinois Southeastern Telephone Co.; also for permission to issue $400,000 par value of common stock by the Illinois Consolidated Telephone Co. and for a certificate of convenience and necessity to the latter.

December 3: Hearing in Springfield on proposed changes in rates of the Mississippi Valley Telephone Co., the Minonk (Ill.) Telephone Co., the El Paso (Ill.) Telephone Co., the Troy (Ill.) Telephone Co., the Woodhull (Ill.) Union Switchboard Association, the Champaign County Telephone Co. and the Montrose (Ill.) Mutual Telephone Co.

December 3: Hearing in Springfield on proposed change in rates of the Cass County Telephone & Telegraph Co. for telephone service in Virginia, Cass County, stated in rate schedule I. C. C. No. 2 original sheet No. 3.

December 4: Hearings in Springfield on proposed changes in rates for telephone service of the Illinois Allied Telephone Co., the Illinois Commercial Telephone Co., the Harrisonville Telephone Co., the LaMotte Co-Operative Telephone Co., the Staunton Telephone Co., and the Mason City (Ill.) Telephone Co.

December 5: Hearing in Chicago on proposed change in rates for telephone service stated in rate schedule I. C. C. No. 2 sheet No. 1A rendered by the Northwestern Illinois Utilities.

December 10: Hearing in Chicago on proposed change in rates of the Illinois Bell Telephone Co. for telephone service stated in I. C. C. No. 1 section 1, original sheet No. 5 general local exchange tariff, telephone service, I. C. C. No. 2 original sheet No. 1A schedule of toll rates, I. C. C. No. 2 original sheet No. 1A, rates for special contract service and I. C. C. No. 2 section 1, original sheet No. 6 teletypewriter exchange service tariff.

December 10: Hearing in Chicago on proposed change in rates for telephone service stated in rate schedule I. C. C. No. 1 original sheet No. 5 of the Farmers New Era Telephone Co.

December 12: Hearing in Chicago on application of the Illinois Bell Telephone Co. for authority to purchase certain telephone instruments from the Ohio Bell Telephone Co.

Kansas Corporation Commission

November 20: Permission granted the Eastern Kansas Telephone Co. to install a new common battery telephone system at Burlington to replace the old system, and to increase the rates when the new system is completely installed and in use.

Missouri Public Service Commission

December 3: Joint application filed by The Western Telephone Corp. to sell and E. E. Shockley to purchase the telephone exchanges located at Amsterdam and Merwin.

December 5: Approval granted joint application of George C. Manuel, executor of the estate of the late J. B. Garnett to sell and E. L. Crow to purchase the telephone exchange located at Leonard.

December 7: Application filed by the Southeast Missouri Telephone Co. to file rate sheet for common battery service at Hayti.

December 9: Approval granted application of the De Soto Telephone Exchange to file a rate for common battery service at De Soto, Jefferson County.

December 9: In regard to the joint application of the Citizens Public Serv-

(*Concluded on page* 38)

Flashes and Plugs—News Briefs and Comments

Among the 21 trade groups that exceeded their quotas for the Chicago Community Fund was the public utility group of which Vice-President G. K. McCorkle of the Illinois Bell Telephone Co. was chairman.

* *

Many newspapers in storm-swept areas in Florida and along the Atlantic coast are praising telephone operators and telephone repair crews for their faithful service in times of emergency and peril.

* *

In Illinois 110 municipalities have started a drive to halt the collection of the 3 per cent state public utility tax.

* *

"Use your trade journals," says the Illinois Telephone Association to its member companies. "It is not only important to have a copy for your own perusal, but also to supply copies for your employes."

* *

The Major Bowes amateur hour on the radio is said to produce from 18,000 to 20,000 telephone calls every broadcast. Which seems to be "All right, all right."

* *

Crops are better this year, but taxes are higher. Retail trade has improved, but taxes have increased. Industrial output has grown, but so have taxes. Why not encourage the favorable conditions and do something to reduce the tax blight?

* *

Attorney B. F. Goldstein, who recently won the $20,000,000 refund case for Chicago telephone subscribers, is among those mentioned for appointment to a federal judgeship.

* *

Two telephone installers have been sued for $110,000 by a Hollywood screen actress for loss of an eye. She alleges they left a tack on the floor that in some way flew up and struck her in the eye. The California tax is—or are—deadly in more ways than one.

* *

Among the total liabilities listed by the Democratic national committee are unpaid bills for telephone and telegraph service aggregating $60,308.

* *

Telephone booths in London now have mirrors, and the men users of the service fear the women will spend more time primping than in telephoning.

* *

Washington says that during the period 1936-1940 there will be need for building annually 400,000 new houses. That ought to encourage the heavy industries and incidentally call for many more residence telephones.

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22 Years' Continuous Contact with Telephone Organizations
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Interurban Bldg., Columbus, Ohio

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Specializing in Telephone Accounting and Rate Cases Since 1918
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Indianapolis, Indiana

Buyer's Weekly Guide

A list of firms and companies offering equipment, supplies or services for operating telephone companies

ADDING MACHINES

Burroughs Adding Machine Company, Second Blvd., Detroit, Mich. — Adding, Bookkeeping, Calculating, Billing and Accounting Machines, Electric Carriage Typewriters, Standard Typewriters, Operator Correct-Posture Chairs. Burroughs machines are in use today in hundreds of progressive telephone companies throughout the country.

BATTERIES—DRY CELLS

Burgess Battery Co., Freeport, Ill.—Burgess Flashlights and Uni-Cel Flashlight Batteries—for dependability and service. The Burgess Twin-Six Telephone Battery —a 3-volt unit designed to replace two No. 6 cells, with longer life, lighter weight, smaller size and a leakproof case. The Burgess Little-Six—replaces the old type No. 6 cell, is smaller and lighter, will not vent or bulge, has all the electrical capacity of the standard No. 6 cell.

National Carbon Company, 30 E. 42nd St., New York.—"Columbia" Telephone Dry Batteries; "Eveready" Flashlights, Flashlight Batteries and Long Life Dry Cells, "National Pyramid" brushes, carbon, graphite and metal graphite for motors, generators and rotary converters. "Eveready" Prestone anti-freeze; "Eveready" Rustone rust preventive; and "Eveready" Air Cell telephone operators' transmitter batteries.

Ray-O-Vac Company, Madison, Wis. —Ray-O-Vac telephone batteries — longer life and better service proven by tests in accordance with U. S. Government standards and records of users. Ray-O-Vac flashlights and industrial flashlight batteries are other items showing Ray-O-Vac's outstanding quality.

BATTERIES—STORAGE

The Electric Storage Battery Company, Allegheny Ave. and 19th St., Philadelphia, Pa.—Exide Storage Batteries. Branches: Boston, New York, Rochester, Philadelphia, Pittsburgh, Washington, Atlanta, Cincinnati, Cleveland, Detroit, Chicago, Kansas City, Minneapolis, St. Louis, Denver, San Francisco and Seattle.

Philco (Battery Division) Tioga and C Streets, Philadelphia, Pa. — Philco- Steel Glass Storage Batteries for P.B.X and central office operation. Your old batteries will command a liberal allowance toward any Steel-Glass cell from 10 A.H. to 1040 A.H. Write now for catalog . . . it will tell you the complete story of Steel-Glass —the finest of Telephone Batteries.

BATTERY CHARGING EQUIPMENT

General Electric Company, Bridgeport, Conn.—Tungar battery chargers. G-E pole line hardware. Cable filling compound.

CABLE—LEAD ENCASED

American Electrical Works, Phillipsdale, R. I.—Paper telephone cable, switchboard cable, bare copper wire. Chicago Office: 20 N. Wacker Drive; Cincinnati: Traction Bldg.; New York: 100 E. 42nd St.

British Insulated Cables, Ltd., Surrey House, Embankment, W. C. 2, Factory: Prescot, Lancashire, England.—Telephone cable of all sizes and capacities.

General Cable Corporation, 420 Lexington Ave., New York, N. Y.—Paper telephone cables of standardized manufacture for over forty years. Weatherproof and insulated copperweld drop wire.

Eugene F. Phillips Electrical Works, Ltd., Montreal, Can.—For any type of wire or cable used in telephone, telegraph or power work get in touch with "Phillips." Manufacturers of bare and insulated copper wires, rubber insulated wires, enameled wire, magnet wire, telephone cables, power cables, switchboard cables, flexible cords, copper rods, etc.

CABLE RINGS

National Telephone Supply Company, 5100 Superior Ave., Cleveland, Ohio.—National Cable Rings, National Splicing Sleeves, Non-Breakable Messenger Cable Hangers, Marlin and Swisher Cable Hangers and Custom Galvanizers. National cable rings are practical because they are two-way,—they allow the cable to be pulled in either direction. National sleeves make secure the weakest points in the line. If it's a splice—make it a National.

CABLE TERMINALS

Cook Electric Company, 2700 Southport Ave., Chicago, Ill.—Protective Pole Cable Terminals, Unprotected Pole Cable Terminals, central office protection, lighting arresters, sleeves, fuses.

Reliable Electric Company, 3145 Carroll Ave., Chicago, Ill.—Complete line of cable terminals, telephone and switchboard protectors, sleeves, fuses, solderless wire connectors and specialties.

CARBON DIAPHRAGMS

Noris Carbon Company, Inc., 160 5th Ave., New York, N. Y.—Carbon diaphragms, carbon back plates, granular and globular carbons, lightning arresters.

CONDUIT

Brazil Hollow Brick & Tile Company, Brazil, Ind.—Makers of Brazil Vitrified Tile Conduit.

CORDS, CABLE AND WIRE

Lenz Electric Manufacturing Co., 1751 N. Western Ave., Chicago—Established 1904—telephone and switchboard cords for all makes of equipment, braided and lead-covered telephone cable, flame-proof jumper wire, interior telephone wire, switchboard wire.

CORDS AND WIRE

Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago—Telephone and Switchboard Cords, Flame-proof Jumper Wire, Switchboard Wire, Interior Telephone Wire. W. L. Runzel, President, has devoted over 40 years to the making of fine telephone cords.

ELAPSED TIME RECORDERS

Calculagraph Company, 50 Church St., New York, N. Y.—Calculagraph is the world's standard elapsed time recorder and gives you toll records printed with elapsed time to the second. Both spring driven and electric motor models are available.

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

International Creosoting and Construction Company, Galveston, Texas—Creosoted Southern Yellow Pine Poles. Plants: Beaumont and Texarkana, Texas.

Jordan Bros. Lumber Co., Box 84, Norfolk, Va.—Virginia White Cedar Poles. Plain or charred and creo-treated butts.

MacGillis & Gibbs Company, Milwaukee, Wis.—Northern White and Western Red Cedar Poles. Plain or butt-treated. Immediate quotations on request.

Michigan Pole & Tie Company, Newberry and Grand Rapids, Mich. — "Poles with Character." Northern White and Western Red Cedar. Strategically located yards, Minneapolis, Minn., and Reed City (Lower Michigan), insure quick deliveries.

Naugle Pole & Tie Co., 5 South Wabash Ave., Chicago, Ill. Northern White and Western Red Cedar Poles. Plain or butt-treated. Let us quote you our new low prices.

H. Sigalet & Company, Ltd., Lumby, B. C., Canada — Western Red Cedar Poles. Plain or Butt treated.

Valentine Clark Corporation, 2516 Doswell Ave., St. Paul, Minn.—Finished Cedar Poles. Plain or Butt treated.

SUPPLIES, SWITCHBOARDS AND INSTRUMENTS

American Automatic Electric Sales Company, 1033 West Van Buren Street, Chicago, Ill.—Public Automatic Telephone Systems, Private Automatic Telephone Systems, Central Battery and Magneto Manual Telephone Switchboards, Remote Control Switchboards, Telephone Instruments of all types, Battery Eliminators, Charging Equipment, Signaling and Control Apparatus, Cords, Wires, Cables, Monotype Copperweld Drop Wire, and a complete line of construction materials and supplies.

Automatic Electric Company, 1033 W. Van Buren St., Chicago, Ill.—Public Automatic Dial Systems, Private Automatic Dial Systems, Telephones, relays, signalling and control equipment.

Automatic Electric Company, Ltd., Milton Road, Edge Lane, Liverpool, England. —Automatic Telephone Equipment.

Automatic Electric Sales Company, Ltd., 1027 W. Van Buren St., Chicago, Ill.—Public Automatic Dial Systems, Private Automatic Dial Systems, Manual Telephone Equipment, telephones, storage batteries, wire, cable, poles, etc.

Kellogg Switchboard & Supply Company, Adams & Aberdeen Sts., Chicago, Ill.—Engineers and designers, manufacturers and suppliers of complete equipment for telephone exchanges and communication systems. Manufacturers of "Master-built" Common Battery, Magneto and PBX Switchboards, "Masterphone" Telephone Instruments, and a complete line of telephone supplies, including bronze drop and interior wire.

North Electric Manufacturing Company, Galion, Ohio—Machine switching telephone systems. Automanual and Automatic. "All-Relay" Switching Apparatus (Dialless and Dial Control). Unattended Satellite Systems.

Siemens Brothers & Company, Ltd., Woolwich, England—Automatic and Manual Telephone Equipment.

Stromberg-Carlson Telephone Manufacturing Company, 100 Carlson Road, Rochester, N. Y. — Telephone apparatus of all kinds, switchboard cords, cable and general telephone supplies.

TOOLS

Crescent Tool Co., Jamestown, N. Y.—CRESTOLOY Pliers, Curved Needle Nose Pliers, Heavy Diagonal Cutting Pliers, Linemen's Side Cutting Pliers, End Cutting Nippers, Crescent Hack Saws.

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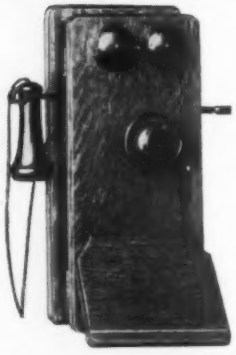

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POSITION WANTED: Experienced commercial supervisor; Bell system, 7 yrs.; college graduate, capable, aggressive, thoroughly familiar with business office and sales promotional work. A-number-one directory salesman, capable of establishing directory department. Best of references. Address 8498, care of TELEPHONY.

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FOR SALE—Telephone exchange, two hundred and twenty-five subscribers; good equipment, mostly new. Also nine room residence and office, completely modern. Terms. Located in western Nebraska. Address 8497, care of TELEPHONY.

(*Concluded from page 36*)

ice Co. of Missouri for permission to sell and of the Eldorado Springs Telephone Co. to purchase the telephone exchange at Rich Hill, Bates County; for authority to the latter company to issue 4200 shares of capital stock of non-par value and for the Citizens Public Service Co. to take and hold the 4200 shares of stock, supplemental order No. 1 issued setting aside the commission's order of November 20 which granted the application.

The applicants joined in a motion asking the commission to set aside the order of November 20, stating that by order of the commission entered November 29 in Case No. 9087 the Citizens Public Service Co. of Missouri was authorized to purchase the physical assets of the Eldorado Springs Telephone Co., thereby making the authority granted on November 20 unnecessary and the authority will not be exercised.

New York Public Service Commission

December 9: Hearing in New York City before Examiner George E. McVay in the commission's investigation of the rates of the Orange County Telephone Co., Middletown, N. Y.

Ohio Public Utilities Commission

December 3: Secretary Clarence H. Knisley, of the commission, certified to that body a report prepared by the engineering and accounting department upon the application of the Jennings Telephone Co. to revise rates at Vendocia as follows:

Business individual line, $1.50 to $3.50; business two-party line, $1.50 to $3.00; business rural line $1.50 to $3.00; residence individual line $1.50 to $2.25; residence five-party line, $1.50 to $1.75; residence rural line, $1.50 to $1.75; and business extension $0.50 to $1.00.

December 3: In regard to complaint of the Ohio Bell Telephone Co. against the Northern Ohio Telephone Co.—in which it was alleged that the latter company was delaying the handling of long distance messages by failure to adopt the standard practice such as used by the Bell company—commission ordered the Northern Ohio company to "observe the established practice with respect to such messages followed by it in all exchanges and by all other telephone companies at their respective exchanges throughout Ohio."

December 5: Approval granted the application of the Farmers Telephone Co., of Ottawa, to increase its rates, effective January 1, as follows: Business individual line, $1.50 to $3.50; two-party line from $1.50 to $3.00; rural line from $1.50 to $2.75; resident individual line from $1.25 to $2.25; five-party, $1.25 to $2.00, and rural line from $1.00 to $1.75.

December 7: Petition filed by the Ohio Bell Telephone Co. asking for authority to sell at par $38,800,000 of its stock. If authorized, the proceeds of the sale will be used to reimburse the treasury of the company for an account of $38,630,914.33 on uncapitalized expenditures, the petition stated.

Oregon Public Utilities Commission

December 4: Hearing at Bend on citation against the La Pine & Southern Telephone Co. to show why its financial condition will not permit operation of its line from La Pine to Silver Lake. The company has requested permission to abandon this line for the reason that it is duplicated by other telephone facilities.